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[NOTICE.]

Wrinkle Department, American Gas Institute.

WRINKLE DEPARTMENT, AMERICAN GAS INSTITUTE,
OFFICE OF EDITOR, GAS OFFICE BUILDING,
DETROIT MICH, March 12th, 1909.

To the Members, American Gas Institute: All members of the American Gas Institute are earnestly requested to forward contributions for the Wrinkle Department as soon as possible.

Your co-operation determines the success of the Department.

F. L. CROSS, Editor.

BRIEFLY TOLD.

APRIL MEETING, NEW ENGLAND SECTION, ILLUMINATING ENGINEERING SOCIETY.—It certainly does look that the New England Section of the named Society goes on with a better swing than that shown in other divisions (estimable and useful as all of them undoubtedly are, and decidedly beneficial to the lighting industry as all of them will continue to be), for its meetings are on the average better attended. There is more "speaking out" in the discussions, and the majority of the members seem surer that gas is in the field of artificial illumination on every account, not only to stay, but to grow, than are the members, for instance, of the Chicago section. If aggressiveness is to be the watchword the gas men certainly have reason in plenty to be aggressive; for they still can deliver the goods that are the most useful, beneficial and cheapest to the public, the mill owner, the factory, the hotel, the warehouse, the shop and the home. In fact at all points and places, save in churches, assembly halls and other structures devoted to "spreading the light" on mental account. However, the current note of Mr. L. D. Gibbs, the clever Secretary of the aforesaid New England section, calls attention to the fact that the April session will be held in the Edison Building, Boston, at 7:30 P.M. of the 20th. The paper of the evening is to be by Mr. S. R. Keyes, of the Boston Edison Laboratory, who will have for his text "Some Recent Tests on Street Lighting." Of course, no one is better qualified than is Mr. Keyes to speak on this topic from the electrician's point of view; but even his extreme views on the favorite refuge of the outdoor electrician just now—the tungsten lamp—could undoubtedly be modified by a little cross-examination—led, say, by Capt. McKay, Mr. Chas. H. Nettleton—whose New Haven Company is now carrying on some street lighting by gas that would do any city credit—Col. Yorke, of Portland, Me., Mr. N. W. Gifford, Mr. Jas. E. Nute, *et al.* Another thing that Secretary Gibbs writes about, seems worthy of close attention. It is the following paragraph, which fittingly concludes a well-put together advance notice of the session:

"The Entertainment Committee, of which Mr. E. C. Kimball, 39 Boylston street, Boston, is Chairman, will endeavor to provide some plan for the getting together of 'city-bound' members for dinner before the Section meeting. All who shall be in town that evening are requested to send their names to Mr. Kimball, as soon as possible, or telephone him (Oxford, 3300) upon that Tuesday, so that he can engage tables for enough members. The dinner will be 'Dutch,' but anyone is welcome to bring guests, and the presence of any prospective members will be especially pleasing."

CURRENT MENTION.—

THE personal offices of Mr. W. A. Baehr, as well as those occupied by him as Chairman of the Board of Information, American Gas Institute, are in the Commercial National Bank Building, Chicago, and not in the Monadnock Building, as stated in our issue for last week.

WHEN the later news came by wire to New York respecting the fire that was raging in Rochester the day and night of the 13th it looked that that beautiful city was doomed to destruction. However bad as it was, it was really not as bad as it might have been, for a fortunate change in the direction of the wind caused a diversion of the flame zone to a district of the city's boundaries which enabled the firemen to get the upper hand. The following day, in answer to a

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SMITHSONIAN DEPOSIT.

telegram of inquiry, addressed to Mr. R. M. Searle, the active head of the Company, the comforting reply was received that the damage to the Company's meters, wires, etc., would not exceed $1,000. To show how quick Mr. Searle and his Company were to respond to the situation, the Rochester newspapers contained this advertisement, which was printed next morning in flaring type in the most conspicuous position obtainable: "To Our Customers in the Fire District—To those of our consumers who suffered loss in the fire of Tuesday, April 13th, we will restore the electric connections between our services and yours, as soon as your building is repaired, free of charges. And to those who have lost gas ranges and gas connections we will furnish new gas ranges and connections free of charge."

THE Gas Bench Construction Company, of St. Louis, Mo., was recently awarded a contract for a stack of inclined benches, to be erected at Detroit, Mich., for the Detroit and Suburban Gas Company, the proprietors of which latter have authorized the making extensive of additions to the plant. The benches to be erected under this contract are from the plans formulated by the Bench Construction Company last year for inclines at Mobile, Ala., the operators of which are claiming record results from their working.

AT the annual meeting of the Kenton (O.) Gas and Electric Company the Directors elected were: Jos. Timmons, A. G. Merriman, W. A. Morton, E. E. Rutledge and H. Price. These will meet for organization the first Monday in May.

Review of the Twenty-Fourth Annual Report, Massachusetts Board of Gas and Electric Light Commissioners.—No. I.

[Prepared for the JOURNAL, by MR. H. THURSTON OWENS.]

The annual report for 1908 of the oldest of our now somewhat numerous public service commissions, is nearly 100 pages larger than that of its predecessor for 1907. The matter has been seemingly rearranged to advantage, and the present volume contains 200 pages of recommendations, decisions and legal matters and 360 pages of statistics. The companies and plants under the supervision of the Board for the years 1907 and 1908 were divided as follows:

	Ordinary Private Companies.				Municipal Plants.			
	Gas.	Elec.	Comb.	Total.	Gas.	Elec.	Comb.	Total.
1907....	50	68	25	143	None	17	4	21
1908....	51	69	24	144	None	22	4	26

During the year 1 gas and 5 electric companies were incorporated; also 5 companies for miscellaneous purposes. The changes in the existing companies were as follows:

One gas and 4 electric companies extended their service to supply other towns. One gas and 2 electric companies now buy, instead of manufacture, their output. The Cottage City Gas and Electric Light Company changed its corporate name to the Vineyard Lighting Company, and now supplies illuminating water gas instead of non-illuminating, as heretofore. The acetylene plant of the South Deerfield Gas Company was destroyed by an explosion and the Company has discontinued business. The Ware Gas Light Company, organized in 1907, was purchased by the Otis Company, of Ware.

The municipal ownership propositions were considered favorably, and also unfavorably, in each of three cases, and one town—Needham—sold out to the Edison Electric Illuminating Company, of Boston.

Recommendations for Legislation.—The Board has recommended a change in the law covering the disposal of increases of capital stock, and increase of work covering inspection and testing of gas meters, and of the purity and illuminating power of gas, and that the present maximum of 20 grains of sulphur per 100 feet be increased to 30 grains. Further, the law will allow gas companies furnishing electric current to dispose of electric departments to a competing electric light company. The legislation enacted upon the above and other matters which have appeared from time to time in the JOURNAL are given in detail, as have also the following decisions of the Board:

Decisions of the Board.—The orders and decisions cover the Salem petition for reduction in price, which, as noted in the number of the JOURNAL for last week, the Company has accepted for a test of 6 months. The Edison Electric Illuminating Company was ordered to supply consumers at a flat rate of 12 cents per kw.-hour, or on a sliding scale, at the customer's discretion. Some rather startling figures were presented in this case. The amount paid for taxes represented 40 per cent. of all general expenses. The new business department, which cost $125,497.60, is credited with only $261,742.74 worth of new business, or 7 per cent. The Winchester petition, covering price of arc lamps is still unsettled. The Chester petition, covering method of changing for electric current, was dismissed. In Chicopee the average net price was recommended not to exceed $1.35 per 1,000 feet. The Fall River petition, covering the claim of injury to the consumers' interests, owing to excessive pressure, along with the panacea offered in the form of individual house governors, was dismissed.

Capital Stocks and Bonds.—Only 19 applications were received for permission to issue stocks and bonds, as against 23 for the year 1907, and the amount granted was only slightly over one-third of that for the previous year, the amounts being as follows:

	Applications.	Approvals.
1907	$4,751,000	$4,384,500
1908	2,506,500	1,687,200

(To be Continued.)

PROCEEDINGS, FIFTH ANNUAL MEETING, ILLINOIS GAS ASSOCIATION.

HELD IN CHICAGO, ILLS., MARCH 17TH AND 18TH, 1909.

FIRST DAY—MORNING SESSION.

The first session of the meeting was called to order by President Rice, March 17, 1909, at 9:30 A.M., with an attendance of about 150 members.

The President—Gentlemen, the carnations that you see on the table represent 79 useful years. Mr. J. B. Howard had a birthday yesterday, and these were presented to him at a little banquet which he had. Now, he has placed them here on the table for us. [Applause.] I take great pleasure in introducing to you the Chairman of the Chicago Section of the Illuminating Engineering Society, Mr. J. R. Cravath, who will address you.

MR. CRAVATH'S ADDRESS OF WELCOME.

Gentlemen of the Illinois Gas Association: When your Chairman asked me to go through the formality of welcoming this Association to Chicago, instead of one of the city officials, representing the Mayor, as is the custom, I thought it very appropriate, because I can assure you that the members of Chicago Section of the Illuminating Engineering Society are considerably more interested in your convention in this city than the Mayor of Chicago could be. I was also much gratified to receive this invitation, not because of any personal feeling or reason in the matter, but because I take it as an indication of the increasing interest which is being shown by the gas men throughout the country in the work of the Illuminating Engineering Society. The Illuminating Engineering Society was organized in 1906, about 3 years ago, for the purpose of studying illumination problems. The membership is composed of all those interested in illumination. It includes electric light company and gas company men, manufacturers of all kinds of lighting appliances and salesmen interested in lighting appliances. I think possibly there has been a feeling among the gas men during the few years of our Society's organization that it has been an electric man's association rather than a gas man's association. I can assure you if there is any such feeling among the gas men it is largely due to the fact that the gas men have not come into the Society and took the part that the electric men in it want them to take. However, I am very glad to say that within the last 6 months there has been a decided change in the attitude of gas men (in this part of the country, at least) towards our Society, as is evidenced by the fact that we have taken in between 30 and 40 new members within 3 months, connected with the Peoples Gas Light and Coke Company, and allied gas interests in Chicago. Furthermore, the present National President of our Association is a gas man, Mr. W. H. Gartley, of Philadelphia. The Society is interested in all things pertaining to improvement of illumination. A great many of us are interested in public service corporations dealing with the supply of gas and electricity throughout our communities. Anything that we can do to improve customers' conditions, to make them better satisfied, to give them more for their money, is going to be a good thing for all companies. We all admit that. It is probably true that the element of competition and the desire to meet competition have a good deal to do with the interest taken by the electric man in illuminating engineering in the past. He has been somewhat handicapped by the higher price of his product. That was especially so before the tungsten lamp came in, and he had to aim to make all the light that was given out useful to his consumer in order to hold the business. He should have done it long before he woke up to the fact that he had to do it. But after all the same illuminating principles hold good both in the case of gas and electricity. A man who studies the illuminating problem of how best to apply his light, is going to make the best success, whether he is in the gas or electric field. Furthermore, I daresay that neither gas nor electric light would be as extensively used to-day if competitors were not present. In other words, it is competition that stimulates the business. Gentlemen, we are all interested together in this cause of illumination, and I want to say, in behalf of the Chicago Section of the Illuminating Engineering Society (a number of its members are present here I think, or will be here before the convention is over) that we will be glad to show you any installation you want to see around Chicago and to take care of you the best we know how. [Applause.]

The President—I will ask Col. Pratt to reply.

Col. Pratt's Reply.

Col. Pratt—Mr. President and Gentlemen: As far back as I can remember, at least as far back as I have been attending gas association meetings, either the Mayor of the city or some representative of the Mayor has come before our organizations and told us something of the cities in which we were meeting—possibly we knew all about the city and the city's affairs ourselves—and in a general way exploited the conditions which surrounded the association at that time, and usually wound up by handing over the keys of the city and saying that the tip had been given the police force that whatever members of such and such an association might do would be overlooked. It is, therefore, refreshing to know that in this Association the programme has been changed, in that a gentleman representing kindred interests to our own comes before us and extends that welcome which a few years ago, coming as it has, from a man who has been more or less identified with electricity would not have been expected. He referred to the benefits that have come to both gas and electricity by reason of competition that existed during the years past. Many of us can remember, in the field of gas illumination, when only the flat flame gas burner was in use. Occasionally an Argand burner would be used if it was necessary to get something a little better, or something a little nearer the table, or wherever we happened to be reading or working, requiring more light, but the only thing that ever compelled or drove gas men, or gas companies, to this present condition in the business, and to bring about better conditions for illumination, has been due to the advent and progress of electricity. Some of us with hair not quite as gray as "Uncle Jerry" Howard's can remember the first light that was brought out in an effort to protect our business. I think it was the old Albo-carbon light, the first effort that was made to intensify the luminosity of the gas flame, then the Siemens, the Lungren, the Wenham and down to the first crude Welsbach in its original condition, its original conception. Then the improved Welsbach and other forms and types of mantle burners, next the inverted incandescent gas lamp; and last, but not least, the gas arc, that agency which has done so much for the preservation and extension of the use of gas for lighting large areas. All these things have been beneficial and our business has prospered thereby. By that I mean that vigorous competition has compelled us to do things that would not have been done except for this competition. So we will go along from year to year. The electric people will bring out something that for the time being is superior to anything that the gas people have. Then some genius will come to the front who will in turn produce something in the gas line that will be superior to that of the electric, and so the thing will go along. But both businesses are being benefited, in my judgment, by these things. We cannot stand in the way of such things, for this is evolution and evolution means progress, and progress ceases whenever we become satisfied with our surroundings. I think we should hail with pleasure and delight these improvements as they come along from time to time, because in the end they will be beneficial. Of course, a man who is operating both gas and electric properties does not appreciate these things perhaps to the same extent that a man who is operating either the one or the other. Mr. Cravath has referred to the fact that we are public servants, doing business in communities, and that in this respect our interests are identical. The fact that either the gas or electric man, one or the other, is giving first-class service benefits the community, because it means that the other will be pushed forward to give his best efforts and his best services to the community. I think we all appreciate the coming here of Mr. Cravath, and I think I voice the sentiment of the gentlemen here present when I thank him for his coming and for the address of welcome he has extended. [Applause.]

The President—I desire to say that if there are any visitors present they are very welcome, and we shall be glad to have them join with us in the proceedings. The Secretary has a few notices to read.

Telegrams and letters, with very best wishes for a very successful meeting, from the following gentlemen who were unable to be present, were read by the Secretary:

James W. Dunbar, Pres., Indiana Gas Association.
Wm. E. McKay, Pres., Guild of Gas Managers, New England.
Preston S. Millar, Gen. Sec., Illuminating Engineering Society.
J. C. McDowell, Pres., Natural Gas Association of America.
Alonzo P. Ewing, Sec. and Treas., Michigan Gas Association.
Henry H. Hyde, Sec. and Treas., Wisconsin Gas Association.
G. I. Vincent, Sec. and Treas., Iowa District Gas Association.
R. B. Stichter, Pres., Southwestern Electrical and Gas Association.
Chas. F. Prichard, Pres., American Gas Institute.
H. T. Edgar, Sec., Southwestern Electrical and Gas Association.
T. D. Miller, ex-Pres., Southern Gas Association.
A. B. Beadle, Sec. and Treas., American Gas Institute.
Jas. D. Nicholson, Sec. and Treas., the Kansas Gas, Electric Light and Street Railway Association.
John A. Britton, Sec., Pacific Coast Gas Association.
Chas. H. B. Chapin, Sec., Empire State Gas and Electric Association.
J. D. Shattuck, Pres., National Commercial Gas Association.
Jansen Haines, Pres., Iowa District Gas Association.
James Ferrier, Sec.-Treas., Southern Gas Association.
George G. Ramsdell, Sec., Society of Gas Lighting.

The President—We will now listen to the report of the Executive Committee.

Report of Executive Committee.

Your Executive Committee begs to report as follows:

Two meetings have been held during the year, in addition to which considerable business has been disposed of by correspondence, including the election of 1 active and 6 associate members. The persons elected were:

Active.

Joseph Morris, Department Superintendent, Peoples Gas Light and Coke Company, Chicago.

Associate.

J. C. Campbell, Salesman, National Tube Company, Chicago.
A. B. Eaton, Western Sales' Agent, United Gas Improvement Company, Chicago.
E. H. Hopkins, President, Ohio Gas Meter Company, Cleveland, O.
Benj. J. Kellum, Manager, Western Sales' Department, Welsbach Company, Chicago.
H. W. Priseler, Asst. Mgr., Chicago Branch, Ingersoll-Rand Co., Chicago.
Edward R. Wood, Jr., Machinery Sales' Mgr., R. D. Wood & Co., Philadelphia, Pa.

It was decided to appoint a Public Relations Committee to consider all public questions affecting the gas business in the territory of the Association, and to take such action thereon as might be for the best interests of the Association. The following Committee was, therefore, appointed and has served in this connection:

E. G. Cowdery, Chairman; E. G. Schmidt, E. E. Morrell, J. T. Lynn, S. P. Curtis, H. L. Rice.

No special report has been received from this Committee, but the new by-laws, hereafter to be mentioned, provide for the continuance of such a Committee.

The finances of the Association having reached a point involving the receipt and expenditure of considerable money, it was decided to incorporate the Association, and this has been done. The directors named for 1 year in the papers of incorporation have resigned, leaving the way clear for the Association to select other directors at this meeting, the new by-laws providing for directors in place of an Executive Committee.

It was decided that the growth of the Association required certain amendments to the by-laws, and these amended by-laws have been favorably passed on by the Executive Committee, and are recommended to the Association for adoption, a copy of which has been sent to every active member. I will not read the by-laws, as every active member must be familiar with them. I will state, however, that the following change has been made: In Section II. the territory of the Association has been defined as the State of Illinois.

The by-laws as amended are:

Amended By-Laws.

Section 1. *Name.*—The name of this organization shall be Illinois Gas Association.

Sec. 2. *Object.*—The object of this Association shall be the promotion of the best interests of the gas business in the State of Illinois, along lines in harmony with the policy of the American Gas Institute.

Sec. 3. *Membership.*—Membership in this Association shall be of four Classes: Honorary, Active, Junior and Associate.

Honorary Members.—Any man prominent in the gas industry, whom the Association desires to honor, may be elected to honorary membership. All proposals for honorary membership must be submitted to and indorsed by the Board of Directors, and if so indorsed

shall then be submitted by the Secretary-Treasurer for vote only at an annual meeting of the Association, and shall require an unanimous vote for approval.

Active Members.—Any man actively engaged in a position of responsibility with any gas company, or in professional gas consulting work, in the territory covered by this Association, shall be eligible as an active member.

Junior Members.—Any man engaged as a minor employee with any gas company, in the territory covered by this Association, shall be eligible as a junior member.

Associate Members.—Any man connected with the gas supply industry, doing business in the territory covered by this Association, shall be eligible as an associate member.

Applications for membership shall be tendered to the Secretary-Treasurer, accompanied by one year's annual dues, and shall be submitted by the Secretary-Treasurer to the Board of Directors.

The Board of Directors shall determine which class of membership, other than honorary, any applicant is eligible to join.

Applications approved by the Board of Directors shall be submitted by the Secretary-Treasurer to the Association for ballot, and this may be at any regular or special meeting or by mail, and a majority vote shall be required for election.

SEC. 4. *Voting.*—All active members, not in arrears for dues, may be present and participate in the discussions and proceedings of any regular or special meeting, and may vote on all questions, except such questions as concern the welfare of the gas companies as a whole in the territory covered by this Association, on which questions the voting power shall be vested solely in the companies, each company to designate one authorized active member with such voting power.

Honorary members and junior and asssciate members, not in arrears for dues, may be present and participate in the discussions and proceedings of any regular or special meeting; but may not vote except that honorary members selected from the active membership shall continue in their voting rights.

SEC. 5. *Officers.*—The officers of the Association shall be a President, a Vice-President and a Secretary-Treasurer, to be elected from the active membership.

SEC. 6. *Board of Directors.*—There shall be a Board of Directors, composed of the officers of the Association, ex-officio, the last Past-President, and of four active members, each elected for a term of two years.

SEC. 7. *Elections.*—The officers of the Association shall be elected annually by ballot, and shall hold office for one year, or until their successors shall be duly elected and qualified. Two directors shall be elected annually by ballot.

SEC. 8. *Duties of Officers and Directors.*—The President shall preside at all meetings of the Association and of the Board of Directors. He shall countersign all checks and perform such other duties as usually devolve upon the office.

The Vice-President shall perform the duties of the President in case of his absence or inability to act.

The Secretary-Treasurer shall keep a record of all the meetings of the Association and of the Board of Directors. He shall prepare, under the direction of the Board of Directors, the annual report of the Board, and shall present the same at the annual meeting of the Association. He shall notify the members of annual and special meetings at least 10 days in advance of such meetings. He shall keep the accounts of the Association, have custody of all moneys belonging to the Association, and pay all bills of the Association, all under the direction and supervision of the Board of Directors. He shall sign checks for the properly authorized payment of all obligations of the Association, which checks shall be countersigned by the President, and for the faithful performance of his financial duties he may be required by the Board of Directors to give bond, the cost of which shall be borne by the Association. He shall perform such other duties as usually devolve upon the offices of Secretary and Treasurer.

The Board of Directors shall care for the general interests of the Association; shall appoint the Standing Committees; shall appoint a Nominating Committee at least one month prior to the annual meeting; shall fill all vacancies in their own body or in the official staff occurring between annual meetings, and shall audit all obligations of the Association and accounts of the Secretary-Treasurer. They shall receive the report of the standing committees and shall make an annual report to the Association covering these reports and their own proceedings for the year. They shall approve and revise the proceedings of the Association before the same are printed, and shall approve all papers before presentation to the Association. They may make any rules for the guidance of the Association not in conflict with the by-laws.

SEC. 9. *Standing Committees.*—There shall be two standing committees, a Public Relations' Committee and a Technical Committee, and these Committees shall be appointed annually by the Board of Directors.

The Public Relations' Committee shall consist of the President of the Association and four active members. All matters of general interest covering the relations between the public and the gas companies in the territory of this Association shall be referred to this Committee with power to take such action as, upon due and careful investigation, shall seem proper to the Committee. This Committee shall submit a report annually to the Board of Directors.

The Technical Committee shall consist of three active members. It shall take charge of all research work undertaken by the Association, especially such work as is required under the agreement of affiliation with the American Gas Institute. It shall, under the direction of the President, arrange for all papers to be presented at the annual meeting of the Association, and shall approve all such papers before presentation to the Board of Directors.

SEC. 10. *Meetings.*—The annual meeting of the Association shall be held the third week in March, annually; subject, however, to a change in date by the Board of Directors if made necessary by any sufficient cause.

Special meetings may be called at any time by the President or Board of Directors and shall be called by the President upon the written request of 25 active members, or of 5 gas companies represented by membership in the Association.

SEC. 11. *Quorum.*—Twenty-five active members shall constitute a quorum for the transaction of business at any annual or special meeting. Five companies shall constitute a quorum when any vote is taken by companies. A majority of the membership, active and ex-officio, shall constitute a quorum of the Board of Directors or any committee at any meeting.

SEC. 12. *Order of Business, Annual Meeting.*—The following order of business shall be observed at each annual meeting of the Association, subject to the interposition of papers and other addresses as may be convenient:

Roll Call.
Reading of Minutes of Previous Meeting.
Report of Board of Directors by Secretary-Treasurer.
Election of New Members.
President's Address.
Announcement of Temporary Committees.
New Business.
Report of Temporary Committee.
Election of Officers and Directors.
Adjournment.

SEC. 13. *Dues.*—Dues shall be $5 annually, for active and associate members, and $2 annually for junior members. Honorary members shall pay no dues. The fiscal year of the Association shall begin and end with each annual meeting. Dues of members elected at any annual meeting shall apply on the year following; the dues of members elected between annual meetings shall apply on the current fiscal year, unless such election occurs later than January 1ft, in which case they shall apply on the following fiscal year.

Annual dues shall be payable by the members to the Secretary-Treasurer on or before August 1st of each year.

Any member in arrears for dues for a period of two years shall be dropped from membership and may be reinstated only by making application as a new member and paying all arrears.

SEC. 14. *Amendment of By-Laws.*—These by-laws may be amended by a two-thirds vote of the active members present at any regular or special meeting, provided that the amendment to be voted on receive the prior indorsement of the Board of Directors, or of 25 active members, or of 5 companies; and that notice of the amendment be given in writing to the entire active membership at least two weeks in advance of the meeting.

The following papers were accepted for presentation to the Association:

"A New Method of Gas Manufacture," by Mr. Henry I. Lea, Chicago.

"The Management of a Small Gas Company," by Mr. E. H. Negley, Canton.

"Investigation of the Effects of Compression and Transmission on the Candle Power and Heat Units of Manufactured Gas," Part I., by

Messrs. H. E. Bates and J. R. Rafferty, Chicago; Part II., by Messrs. V. A. Houghton, Aurora, and S. L. Cole, Waukegan.

"Accidents: Their Cause, Prevention and the Settlement of Claims," by Mr. C. S. Goodwill, Springfield.

"The Comparative Value of Various Coatings and Coverings for the Prevention of Soil and Electrolytic Corrosion of Iron Pipe," by Mr. Robert B. Harper, Chicago.

"Commercialism," by Mr. Lacius S. Bigelow, New York City.

The following applications for membership have been received and indorsed, and are favorably recommended to the Association:

Active.

Armstrong, G. H., Waukegan.	Hunter, C. W., Chicago.
Beebe, T. R., Chicago.	Kirby, M., Aurora.
Cole, S. L., Waukegan.	Larson, H. C., Waukegan.
Davidson, E. S., De Kalb.	McClary, N. A., Chicago.
Dawes, H. M., Chicago Heights.	McGwinn, G. D., Streator.
Dawes, R. C., Chicago Heights.	Moore, J., Chicago.
Elder, T. A., La Grange.	Rafferty, J. A., Chicago.
Finn, H. J., Chicago.	Reinhard, S. A., Chicago.
Hartman, W. E., Joliet.	Weber, F. C., Freeport.
Hirst, J. B., Chicago.	

Associate.

Dell, J., St. Louis, Mo.	Little, S. B., St. Louis, Mo.
Lathrop, F. A., Chicago.	Raftery, E., Aurora.

Junior.

Faber, C. O., Aurora.	Weiland, C. C., Aurora.

Report of Treasurer.

The Treasurer's report showed receipts of $1.266.05, expenditures of $608.77, and a balance of $657.28. It bears the certification that the statements contained had been verified by Messrs. G. F. Goodnow and Henry S. Whipple, as Auditors.

The President—If there is no objection the reports will be received and filed, and we will proceed to consider the recommendations. Hearing no objection I desire to call your attention to the healthy condition of the finances, the balance on hand having risen from $473 to $657. We will first take up the applications for membership.

Election of New Members.

On motion of Col. Pratt, the Secretary was authorized to cast the ballot for the names of the applicants as read in the respective classes of membership as recommended by the Executive Committee. [Seconded and adopted.]

Col. Pratt—I would like to inquire whether, if other names are presented later during the session, they will come before the Association?

The President—Yes, to-morrow we will have additional names. [Later on several names were added to those already proposed, and they were admitted to membership in similar way.] The Executive Committee recommend, as amendments to the by-laws, the change you have just heard read by the Secretary, of which a copy has been sent to every active member, with the request that, if the member receiving such copy have any objection, he file such objection in writing. No question has been received from any active member. The by-laws finally indorsed by the Committee at its meeting yesterday are exactly the same as the copy sent out, with the exception of the following change in Section 2: "The territory covered by the Association is defined to be the State of Illinois." Gentlemen, we wish to save as much time as possible at this meeting, but we do not wish to prevent any debate on these amendments to the by-laws. I will ask for unanimous consent to pass these by-laws without debate, but in so doing I wish to say that if any wishes to question or debate the by-laws, will he please say so?

Mr. Lynn—I would like to ask, for information, does that territory apply to associate members as well as active?

The President—The clause relating to associate members is as follows (reading clause), so it makes no difference if a man's place of business is in New York, for example, if he does business in Illinois. Is there any objection to unanimous consent to the passage of these by-laws without debate? I hear no objection. A vote on any amendment to the by-laws requires two-thirds of the active membership. We will now vote on the amended by-laws by the Executive Committee as per copy sent out to the active membership, with the change just mentioned in Section 2. [The amendments were unanimously adopted.]

President Rice now read his

INRUGURAL MESSAGE.

Gentlemen of the Illinois Gas Association: Our fifth annual meeting, to which it is my privilege as your President to welcome you, finds us one of the largest State gas associations in the country, grown in 3 years from comparative insignificance into an organization of which we may well be proud.

The first two meetings of our Association, of which you now have record in the year-book issued last year, called together in short session but a few representatives of the gas companies in our State; but the germ of growth was there, and, beginning with the success of the Peoria meeting, our Association has rapidly expanded into the gratifying condition of to-day.

The past year has witnessed a rapid increase in the number of State Associations of which the need and value are now fully felt throughout the entire country. Only a few of these, of which our Association was the first, are yet affiliated with the Institute, and the plan and scope of this affiliation have yet to be worked out successfully, as they no doubt will be within the coming year. We have endeavored to fulfil our part of the affiliation agreement calling for original work this year, although without official guidance from the Institute; and have, indeed, two papers, covering original research of value, to offer. The entire scope of this affiliation between the Institute and the State associations has been referred to a special committee to report this fall, and your interests will be, as they have been, fully protected by your officers and your representative on the Institute Board.

It is proper that our Association do its full share in the advancement of our engineering work. There is no department of our business more important, and none that we should guard more carefully against the evils of ignorance, indifference or too great complacency as to results already secured. It is gratifying to note that at no time in the history of our industry has there been more real progress than is now being made in the engineering of our profession, but we must not forget that in our work, as in all industry, science is yet young; that while we may very properly take pride in the advances already secured, we should look ahead rather than behind; and that if we have conquered problems in the past, at no previous time in our history have more new or more important problems pressed upon our attention.

In an age, remarkable for its commercial activity, and when the well directed efforts to keen business managers have brought new life to our properties in marvelously increased sales, and in wonderfully improved load factor, the latter resulting in lower costs per unit which the public have greatly shared, it would be remarkable if, in the minds of some, this commercial department of our business should not certainly come to overshadow in importance all others. But we must remember that concurrently with increased sales must go the greater development of the manufacture and distribution of our product, and that as our business broadens so does also our responsibility increase in all that makes for the science of economy and service.

On the owners and executives of our gas properties, large and small, rests, therefore, this double duty in their engineering work. The duty of properly using present knowledge and the duty of contributing a fair share to future progress. Both demand the employment, recognition and adequate reward of the best engineering talent that can be afforded, with insistence that commensurate results accrue. The problem is often difficult, ranging in application from the smallest companies in which only one official, often chosen for business ability alone, can be employed, to the largest combinations of capital where loss of touch with operating details may occur from the very magnitude of the operations involved. These latter are fortunate if they can, even in part, secure that direct management of owners, that admission of operating men to the executive counsels, which Andrew Carnegie says, in his recent article on "Capital and Labor," "Nothing can stand against;" the former are fortunate if conscientious endeavor finally conquers deficiency of training.

The first requisite of good service, that watchword of our profession, is the service that is in the gas. We need no legislation to tell us what that is, none to tell us what equipment we should have, what testing we should do, what standards we must apply and meet; we should need none to force us to these things. We know that in good operating practice lies not only the economy of first cost but of ultimate cost. Progress we must ever foster, deficiencies, however small, we must squarely face against; and, with legitimate pride in the engineering progress we are making, endeavor so to spread that progress that in no gas property, large or small, can fair cause be found for outside complaint or interference.

This is no plea for overvaluing any one department of our business, no plea for the slightest slackening of successful commercialism; it

is rather a plea for that broad and efficient management which shall fully recognize the value of all of our necessary activities and equally forward them. And if we study constantly to better maintain our service, cheapen and improve our product, if we also equally endeavor to increase the volume of our business and to even strengthen the financial position of our properties, we must assuredly, to meet these ends, bring to our labors a comprehensive and exact knowledge of accounting. Here also much ground has been covered, with much work still ahead, and the final word yet to be said on many disputed points; and here also, looking ever forward, we must spread the gospel of use and progress.

The first work of the American Gas Light Association on uniform gas accounting has not yet been supplemented by further contributions from the national Association on this subject; but the committees from the Institute, with those of other Associations, have confined themselves to advising and aiding as far as possible the recent inquiries conducted by the various State Commissions. We have, however, Dr. Humphreys' able papers on "Depreciation" and now quite recently the schedule of accounts of the two New York Commissions and the Wisconsin Commission.

Time does not permit of any analysis of these different systems, pamphlets of which can be readily obtained from the Secretaries of the Commissions. The principal divergence from the so-called "Uniform System" will be found in the greater detail of construction accounts, in the provisions for depreciation, in rulings on disputed points such as capital entries, bond discount, stock premiums, etc., and in much of the general arrangement.

It must be recognized, however, that names and arrangements of accounts are of but little moment so long as the divisions are correctly understood, and are in sufficient detail to permit of any necessary combination and analysis, the supreme test of any system; and, with these three new systems so recently in compulsory use over a considerable area, it may be wise to await the results of this experience for the present and turn our attention more to methods than accounts. For of two companies rendering reports of about the same general scope, one will determine the figures with systematic ease and accuracy, for which the other may substitute a muddled and time consuming tangle of guesswork, and I know of no subject on which a paper, or committee work, taking into careful consideration the relative extent of operations, would be more valuable. We were not able, however, to obtain a paper of this scope this year.

It must also be remembered that no system of unit costs yet attempted has any direct bearing upon rates, but that the rate proposed or allowed for any particular service must be studied in connection with that service and its demand on the undertaking; and that, although a relation may be allowed as existing between the final average of all rates and the average of all costs, nothing is thereby determined as to the correctness of the several rates.

It must also be understood that the comparison of different figures of maintenance costs can be of little value without comprehensive knowledge of local conditions and of operating methods and, especially in connection with the latter, the going rate of depreciation from wear-and-tear. The effect of local conditions on costs is, of course, appreciated by everyone; but it is perhaps not so well understood that there must be a close relationship between current maintenance and depreciation from wear-and-tear, each of which must be known to comprehend the others, for it is certainly true that the useful life of any building or machine will be absolutely affected by the care with which it is maintained, and that low maintenance costs will inevitably carry high depreciations and *vice versa*.

The general subject of depreciation remains as vexed and unsolved a question as ever. The three new State commissions have all decided to provide for one general change against operating to care for depreciation from wear-and-tear, obsolescence and inadequacy combined, the amount of this charge to be left for the present to the best judgment of the individual companies. This lumping of all depreciation into one item may be the best decision for the present; but in view of the relationship just explained, between maintenance cost and that depreciation which is due to wear-and-tear, it would seem wise that ultimately some attempt should be made to separate this portion of the depreciation charge, which has no relation whatever to the other depreciation factors, and apportion it among the maintenance accounts, in order that the experience of future years may check and determine the figures; for otherwise it is difficult to see how we shall gain adequate knowledge as time goes by as to these items. There has been, as yet, but one commission ruling on the subject of depreciation. In the Manitowoc Rate case, decided December 14th, 1908, the Wisconsin Commission stated as follows:

"Depreciation is a much disputed item. Opinions often differ not only as to the amount of the same but as to how it should be treated. Some hold that it does not amount to even 2 per cent. a year on the cost of the plant, while others place it as high as 5 per cent. on this cost.

"While there are great variations in both opinions and practices wherever depreciation is involved, there is nothing about it that is so very mysterious. The average life of a gas plant appears to be about 30 years. Some parts of the plant last much longer than this, but there are other parts, again, which have a shorter life. With a life of 30 years it is evident that, in order to accumulate a sum sufficient to replace the plant at the end of its life, about 3½ per cent. of the cost would have to be set aside annually. If invested at compound interest until required the amount to be set aside could be reduced to a somewhat lower figure."

A recent court decision in Michigan allowed 5 per cent. of the reproduction value of the property as an annual charge for total depreciation and declined to consider that a lower funding rate be substituted.

Dr. Humphreys, in the New York Consolidated Gas Company's case, estimated the annual depreciation at 2½ per cent. of the depreciable property, which included current renewals, but not current repairs; an estimate which he is, however, careful to state, is not for general application, every situation needing separate study.

With this last suggestion I think we shall all agree, and also as to the need for the most careful study and application of proper depreciation charges in connection with all depreciable property. We must realize that overestimates are to be as carefully avoided as underestimates, and that in keeping our accounting safe we must be careful not to repeat the error, to-day traceable in the condition of certain Massachusetts companies, of over-reduction of plant value. For this is not depreciation but amortization of capital, and, while perhaps entirely proper under certain conditions, can only be so if undertaken and agreed to for what it is, and is not to be undertaken under any other guise. Finally, we must accept as inviolable the rule that moneys set aside from earnings to care for depreciation in any of its forms, whether this setting aside be voluntary or by legislative or judicial mandate, shall never receive a final disposition for any other purpose unless with the same publicity as may have attended the expression of our first intentions.

The financing of depreciation cost and that cost are two different matters, as Dr. Humphreys has pointed out, and difference of opinion exists regarding the proper methods of financing; or, to put the question in another way, as to whether moneys set aside for depreciation shall or shall not be credited with interest; and as this is a question which somewhat affects rates it deserves our careful study. Depreciation is, as has already been pointed out, of two kinds, that which, despite current maintenance, is constantly going on through wear-and-tear to the certain destruction of total value in due course of time; and that which, springing from possible future obsolescence or inadequacy, represents a hazard for which a fund must be established, measured as carefully as judgment will permit, if our business is to be operated within the limits of safety. The one is steadily going forward every day, the other is a possible and indeed a probable contingency of the future. It may, therefore, be argued, and I submit it for your consideration, that the financing of these two kinds of depreciation should be differently handled. In the case of wear-and-tear it would seem that the depreciation allowed cannot properly appear as a reserve fund, but that this is an actual decrease of plant value already existing, on account of which the proper plant account must be finally written down on our books; and although we may not for convenience at once close the reserve account established, in no way can we consider that we have established a fund such as could conceivably draw interest to its own betterment. But in the case of money reserved for a hazard of the future of uncertain date with no meantime reduction of plant value or loss of efficiency because of the hazard, it would seem that we have such a fund possibly entitled to the returns of its own earnings. The question is not whether such a fund, according to the use made of it, shall earn interest or not; for it seems almost beyond dispute that moneys which, if invested in the undertakings of others, would earn interest, are equally entitled to earn it if for a time invested in our own, doing the work of that which would otherwise have to be borrowed at interest. But the question is whether this interest shall be credited as an earning to the general undertaking or to the special fund. In the one case the fund to be established must be financed by the percentage, in the other by the sinking fund method, and it can, I think, be demonstrated that, unless we are to

ask the consumers of to day to assume some of the proper burden of those who will succeed them to-morrow, it is by the sinking fund method that we will proceed.

What is argued, however, is that the separation of these two different kinds of depreciation, advantageous in the operating, is also proper in the financial department of our business, that only where we establish a fund for future hazard or contingency have we a choice as to methods of financing, and that that choice shall be fixed on the plan which will most equitably distribute the burden to be carried.

It is natural that in an address of this character, delivered at this time, there should be some mention of the present tendency toward public utility commissions and of those commissions that have been recently established. The arguments for and against this method of regulating corporations have been gone over too often to need repetition here, and it is clear that regulation of this character may be a source of either good or evil, according to the scope of such regulation, and the wisdom with which it is administered. To gain the desired end of protecting the public against the possible encroachment of corporate wealth and against its own ignorance, passion and prejudice, and at the same time to preserve all the benefits of individual endeavor, to keep regulation from encroaching on the province of operation, all these considerations need not only the most careful study, but must be approached for their proper solution with the most disinterested and high-minded endeavor. And with three such Commissions newly established and in operation, the present does not seem to be a time when other legislative communities should rush to hasty emulation, but rather a time for careful observation and study of the application and effect of this new legislation, avoiding thus the needless economic waste of duplicate experiment. Public commissions of this character cannot be successfully administered without great expenditure. If, as a result of this expenditure, no greater benefits shall accrue than can be obtained from simpler administrative efforts, the public will be the first to demand the repeal of the new legislation, while if true success and real advance attend the establishment of such bureaus, the public service corporations will go hand in hand with the public in demanding their wider extension.

It would be very interesting to consider here all the work that has been done by these three Commissions during the period of their establishment, but time does not permit more than the mention of some points of particular interest. The Commissions have been most generous in their mailing lists, and copies of their several decisions as rendered and their annual and special reports can be obtained on request, and will be of value to all who are making a study of this important subject.

The New York and Wisconsin statutes both provide for the regulation of all public utilities within those States as to character of service and issue of securities, and also provide that all franchises obtained from the proper governing bodies must receive the assent of the Commissions. Competition, unless absolutely demanded for public convenience, is practically forbidden, and on this important point the New York Commission, Second District, has laid down the following governing principles:

"A business which supplies to a community a public utility like gas, or electricity for light or power, is one in which free and full competition between two companies engaged in the same business cannot be expected to prevail permanently. Experience has, we think, amply demonstrated the fact that when there is more than one such company in a municipality engaged in the same business, while active competition may prevail for a more or less brief period, the companies generally find it to their interest to reach an understanding, either as to prices or division of territory, and in the great majority of cases the two companies either become one or the control of both passes into the hands of the same parties. It can doubtless be demonstrated beyond any possibility of successful contradiction that better service and fairer prices in furnishing such public utilities to a community can, as a general rule, be given by one corporation than by several, and that this can be done with the use of less capital. The existence of more than one corporation furnishing the same public utility leads, for a time at least, to duplicate development, to the building of plants which are not needed to serve the community, to the duplication of unsightly and expensive pole lines and distributing service, to costly and unnecessary tearing up and destruction of pavements, to administrative expenses greatly in excess of those which a single company would have to meet, and to increased leakage of gas or electric current.

"If a small community is well served by an existing concern furnishing electric current for light, heat and power, the application of a new corporation for leave to exercise its franchises in the same field is not to be looked upon with favor, the unnecessary duplication of plants being an economic waste, injurious in the long run to the public.

"If an existing concern is serving the public in an unsatisfactory manner, it is entitled to little consideration when it seeks to exclude competition."

In a later case the Commission said, referring to these previous statements, "Increased experience and greater observation have not led the Commission to believe that these statements are in any wise incorrect or exaggerated. It may be added that in some cases the Commission believes that its powers should be exercised to protect existing investment against the ruinous effects of competition, especially when those interested in the existing plant manifest a disposition and ability to put the service upon a proper basis at a reasonable cost."

The Commissions have established standards of quality and service with which you are doubtless familiar, and in connection with which a noteworthy feature is the refusal of the Wisconsin Commission to make any requirement as to candle power, the Commission stating that, after careful investigation, they are satisfied that if any artificial gas, as at present manufactured, is kept up to the requirement of heating quality, its candle power will be satisfactory for all the reasonable needs in which candle power is, at present, a factor.

On this subject it is interesting to note the recent statement of the New York Commission, Second District, as follows:

"The employment of the candle power standard in this State in determining the value of gas is subject to fair criticism. When gas was used solely as an illuminant, and by means of open flame burners, its value was properly measured in terms of another illuminant, the candle, as a standard. In recent years, incandescent mantles have largely displaced the open flame burners. The light given off from this device is generated by raising the mantles to a high temperature. In recent years also, gas has come into extensive use as a fuel. Under these conditions a very small percentage, probably in this State less than 20 per cent. of the total gas consumed, is now used in open flame burners.

"As the measure of the value of gas should be based upon the preponderance of purposes for which gas is used, the candle power as a standard apparently has come to be of minor importance.

"For the purpose of confirming this, the Commission has begun a systematic series of tests which will determine the heating properties of gas as now supplied under candle power restrictions, and whether the establishing of the heating value as a standard will not result in giving a more satisfactory service than the commonly used candle power standard."

It is interesting to note that, in the great State of New York, only 44 correspondence complaints were registered with the Commission against gas corporations during the year 1908, of which 36 were quickly closed. Sixteen of these complaints were against rates, 23 were complaints of service and 5 were classed as miscellaneous.

The accounting orders of the several Commissions have already been referred to. Those in New York State were effective January 1st, while the Wisconsin order takes effect July 1st. Both schemes outside of New York city provide condensed schedules for the use of the smaller companies; thus New York has three of these condensations based on gross revenue, while Wisconsin has one based on population. It is interesting to learn that the two companies in our State, with executive offices located at Milwaukee, have decided to follow, for the present, the Wisconsin Commission system.

As a side light on capitalization, a statement of the New York Commission, Second District, in connection with an application for capitalization of a newly organized street railroad company, is worth attention. "In addition to the estimates of the physical cost," said the Commission, "proof should be given touching following matters which enter into the expense of launching the enterprise: Expense of the organization, incorporation taxes, expense of obtaining certificate of public convenience and an understood preliminary engineering expense of proceedings to issue stocks and bonds, expense of marketing securities, discount upon bonds providing they cannot be sold at par, interest upon the bond issue during the period of construction and prior to the beginning of revenue producing operation, salaries of officers and incidental expenses during construction period, expense of obtaining local franchise and consents. All

allowance will be made for a proper amount of working capital to be determined by the extent of the proper operations. A fair allowance will be made for services in promoting the organization of the enterprise. Such an allowance will be placed upon the basis of just payments for valuable and indispensable services." In its annual report the Commission draws particular attention to the important points raised in this traction order just referred to and states as follows:

"In these three matters of discount on bonds, working capital and allowance for promotion or services, the practice is understood to be different from that prevailing in Massachusetts. Since 1894 Commissions in that State have had control of the amount of securities that public service corporations can issue for any and all purposes. The statutes under which they act are in many respects similar to the Public Service Commissions Law, in this particular: Railroads and street railroads must apply to the railroad commission, gas and electric light corporations to the gas and electric light commission, and telephone and telegraph, aqueduct and water companies to the commissioner of corporations. Both the railroad and the gas and electric light commissions (Massachusetts) refuse to permit securities to be issued for discount on bonds. It is understood that the railroad commission apparently disapproves of an issue of stock or bonds to provide working capital, but that the gas and electric light commission permits this item to be included in a company's original capitalization.

"The Commission (New York) has not found occasion to doubt the correctness of its conclusions upon these points. It has endeavored, and will continue to endeavor, to make its rulings such as to encourage the investment of capital and the promotion of enterprise."

In the accounting of bond discount, however, the Commission provides for carrying the amount in a suspense account, with provision for the complete amortization of the same at or before the maturity of the issue. The Wisconsin Commission has recently accepted going value as a proper consideration in determining total value, but has not yet announced on what basis this will be determined, nor was it included as an element of value in the recent Manitowoc valuation.

On the question of rates the Wisconsin Commission has taken advanced ground in this Manitowoc decision, and after asserting that the average cost per unit, owing to the conditions by which the gas business is surrounded is seldom a satisfactory basis for rate making, and discussing the fixed and variable expense of making and distributing gas, gives the following important opinion:

"The question might be raised here, should these differences in the cost, as between the various classes of consumers, be taken into consideration in fixing the rates? The counsel for the city held that they should not. While admitting that the small consumers were more costly for the plant than the larger ones, he argued that the rates should be the same for all, that the small consumers are largely made up of those whose ability to pay is comparatively small and whom it would, therefore, be unjust to charge higher than the average rate.

"While there is considerable force in these arguments, we are unable to entirely agree with them. If it costs more to carry some customers than it does others, may it not be discriminatory to charge all the same rate? It would seem so. At any rate, it is not easy to discover really valid arguments to the contrary. While no rates should be higher thon the value of the service for which they are paid, it is by no means certain that it would be fair to levy the same rates on all, regardless of the cost. Such policy, besides being inequitable, invariably tends to discourage large consumption. As the cost of production per unit depends very largely upon the amount produced, decreasing as the volume of production is increased, and *vice versa*, it usually does not require much of a falling off in the sales to so increase the cost of production per unit as to even more than offset all advantages that the small consumers may derive from being placed on the same rate basis as the large consumers. The greater the consumption is the lower is also the cost of production. As it is only when the profits are large enough to permit it that rates can be reduced, such sales may easily be of material assistance in securing lower rates. This phase of the situation is often entirely overlooked, but it is nevertheless a vital element in all rate questions. It is a situation in which large opportunities for an effective promotion of the business may usually be found and which should, therefore, be embraced and handled in an intelligent and courageous manner. Failure to utilize such opportunities, even if it has to be done at temporary increases in expenses, may mean enormous losses in future sales and profits. Such failures usually stand for a short-sighted policy on the part of the management, and in which those among the customers, who either actively or passively support such policies, are necessarily sharing. The same rate for all is a term that is often much more beautiful in the abstract than when concretely applied. When it stands for the same rate for all, regardless of both the cost and its effect upon the growth of the business, it may be in violation of sound economic and business theories as well as of public policy. While there may be places where the conditions are such that uniform rates will fairly meet the situations, such places are not frequently met with. From these facts it would seem that it is seldom safe to adjust the rate schedules of a plant without reference to the cost of furnishing the service and without regard to the effect of such adjustment upon the development of the business."

Another semi-official Commission utterance on the subject of rates is found in the address of Professor B. H. Meyer, of the Wisconsin Commission, before the Northwestern Electrical Association, January 21st. Professor Meyer spoke as follows:

"Assuming that the character of the service and the price to be charged for it have been determined for the present, there must be solved that very important problem of the development of the industry which provides this service. In this development the consumer and the investor are equally interested, as well as the general public not directly connected with any particular plant, because the utilities constitute an important part of the industrial life of the State which affects every citizen within it. Bearing upon the question of future development, no provision of the law is more important than Section 1797 m17, which provides for profit sharing and sliding scale arrangements. The profit sharing provisions go chiefly to the scale of wages to be paid by the utility, while the sliding scale provisions go primarily to the rate of return upon the investment as the reciprocal of the rate of charge paid by the consumer.

"It is apparent that if the management of a plant can have before it constantly the incentive of an increase in the rate of profit in proportion as the price to the consumers goes down, no efforts will be spared to bring about this reduction in the price to the consumer in order that a higher rate may be secured for the investor.

"Personally, I am firmly convinced that the sliding scale arrangement is full of promise for the future, and that in it we find the solution of one of the most important factors, if not the most important factor, affecting the development of utility enterprise in Wisconsin. It will prevent lapse and stagnation and tend to keep in places of greatest responsibility the most competent men, secure the adoption of the best known and approved methods, and the installation of the best types of machinery and appliances."

The question of the sliding scale price of gas, which may better be stated as profit sharing between company and public, is prominently before us at the present time. Capitalization in all its phases of physical value, promotion increment, going value and goodwill may be satisfactorily and amicably adjusted; but if there yet remain a disposition on the part of the public to insist on only a fixed return on this total value, bad effect must inevitably follow in the course of time from such impairment of incentive to effort.

This consumer profit sharing basis of rates is a principle designed to effect a certain result, a premium on good progressive management, and as such its application, if attempted through legislation, should be broad and free, unfettered by any attempt to theoretically define its operation in advance. An initial capitalization, and a fair arrangement financially practicable to care for growth, a base rate and interest allowance, full publicity of accounts; these, with the provision of an equal share, to the public through the rate, to the owners through the dividend account, in any excess and safely divisible earnings, are the essentials of a scheme, the initiative in which must, within reasonable limits, always be left in practice to those charged with the financial burden. Already to a certain extent, in operation under legal sanction, both in this country and abroad, and recognized for years as a guiding principle by numberless wise managements whose customers have thereby enjoyed a steady and voluntary reduction in rates, it is a plan of final settlement of the rate question full of interest and of promise. And in this sharing of profits the operating men must not be forgotten, but they also must, for full success, be allowed to share in the results to which their efforts will largely contribute.

I have trespassed long upon your time in discussing these many interesting subjects that crowd so upon our attention to-day. Many among you are better qualified to discuss them, but if, in any way, this presentation shall stimulate your further thought and study it will not have been unprofitable. It is not alone in the talents of the

few, but in the collective wisdom of us all, that the future will be determined.

Vice-President Quackenbush—Gentlemen, we have had the pleasure of listening to an address that is as timely as the proverbial Elgin watch, and for my part I commend it to your careful attention. Sooner or later these questions are coming to each one of our desks, not for thought, but for experience. It would seem, inasmuch as the usual custom of assigning a committee to consider the President's address is not to be followed, that we take this address, carefully consider it and give it our thought. It may mean the saving of a great deal of worry in the future. The paper is certainly worthy of the most careful consideration. [Applause.]

(To be Continued.)

[Official Report.—Continued from Page 638.]

PROCEEDINGS, FIRST ANNUAL MEETING, SOUTHERN GAS ASSOCIATION.

Held in the Grunewald Hotel, New Orleans, La., Feb. 18, 19 and 20.

Second Day—Morning Session.

The President called the session at 11 o'clock A.M., and said: We have a programme printed for the proceedings of to-day and to-morrow. Everybody should secure a copy of it so no mistakes will be made. There will be a trolley ride this afternoon at 2:30, starting at Camp and Canal. Two cars will be provided. Arrangements for the river ride have been perfected and we will leave at the head of Canal street, immediately after adjournment to-morrow, about 1 o'clock, on the ferryboat "Alice." By-the-way, let me here say that is the same ferryboat on which the excursion was taken on the river by the Western Gas Association, in May, 1902. Hence, as it has done some pretty good work in the gas line; we hope it will do likewise to-morrow. This morning we have the

Appointment of Committees

as the starter. The President then named the following Committees:

On Nomination of Officers for Coming Year.—Messrs. M. Dexter, S. W. Greenland, M. M. May, W. D. Marshall and J. P. Rushin.

Committee on Next Place of Meeting.—Messrs. J. R. Huntting, R. C. Congdon and T. Pullen.

Committee on Badges.—Mr. J. H. Hagerty.

The appointees were ordered to report at their earliest convenience. At the request of the President Mr. Ferrier presented his

Reports as Secretary and Treasurer

as follows:

Treasurer's Report.

Receipts—		
Dues and initiation fees		$500.00
Interest		3.28
Total receipts		$503.28
Expenditures—		
Cost of charter	$50.00	
Printing, stationery, postage, etc.	46.38	
Total expenditures		96.38
Balance on hand, Feb. 17th, 1909		$406.90

Telegram from Mr. H. L. Doherty.

The Secretary—Let me read you the following telegram from a man we all know and respect, Mr. Henry L. Doherty.

"Sorry I cannot be at the meeting of the Southern Gas Association, but I send my best wishes for success."

Routine.

The Secretary—The legal formality in regard to the charter of the Association must be gone through. I have here our application for a charter, which is very short, and I will read it and then a motion will be in order as to whether we shall accept it or not. [The Secretary reads the application for charter, constitution and by-laws.]

The President—You have heard the reading of the application for a charter which makes us a legalized institution. It looks to me as though it settled Mr. Ferrier for the Secretaryship for the balance of his natural life.

[On motion, the application for charter was adopted as read.]

Election of New Members.

At the meeting of the Executive Committee the following applications were read and approved, all of them having been duly sponsored

Active.

Beach, E. C., Little Rock, Ark.	McMichael, P., Atlanta Ga.
Chambers, R.J., Montgomery, Ala.	Moore, H. M., Austin, Tex.
Curtis, A. G., Shreveport, La.	Moses, F. D., Trenton, N. J.
Day, V. B., Montgomery, Ala.	Perry, J. V., Charlottesville, Va.
Doherty, H. L., New York, City.	Priest, G. H., Baton Rouge, La.
Dunbar, C. H., Houston, Tex.	Pullen, J. T., Jackson, Miss.
Dunlop, C. W., Atlanta, Ga.	Salter, W. J., Meridian, Miss.
Huntting, J.R., Chattanooga, Tenn.	Williams, G., Montgomery, Ala.
Ingle, J. P., Baton Rouge, La.	

Associate.

Barrelli, J. S., New Orleans, La.	McCartney, W.J., Kalamazoo, Mich.
Brown, J. C., Chicago, Ills.	McNamara, J. P. Detroit, Mich.
Case, C. A., Chicago, Ills.	Martin, A. W., Baltimore, Md.
Ford, W. B., Rirmingham, Ala.	Mitchell, D. B., Atlanta, Ga.
Holmes, A.G., East Pittsburgh, Pa.	Mauser, O., Stonega, Va.
Jones, H. P., Cincinnati, O.	Parker, J. H., Rockford, Ills.
Kahn, B. B., Hamilton, O.	Weadley, W. F., New York City.
Kellum, B. J., Chicago, Ills.	Wolford, G. W., Detroit, Mich.

[On motion the Secretary cast the ballot of the Association for the election to membership of the names presented.]

Mr. Dean, Chairman of Committee on New Members, invited the newly elected members to rise, and they were appropriately welcomed by the President.

At the suggestion of the President, Mr. Congdon then read the

Report of Committee on Papers.

On December 22d Mr. Congdon received a letter from our President appointing him Chairman of Committee on Papers, to act in conjunction with our Secretary, Mr. Ferrier. The date of appointment was too late to allow Mr. Congdon opportunity to secure a list of authors who would be representative of our Association. It would have been his pleasure to have had a paper from each of the States included in our organization. Before the date of his appointment, however, Mr. Ferrier said he had been in frequent communication and had secured a fairly well distributed list of authors, who promised to present what we considered a very desirable list of subjects. Unfortunately, and at a late date, three of the authors were obliged to withdraw their names, and we were forced to rely on Atlanta to make up the deficiency. The work of the Association has been considerably handicapped through the illness of Mr. Ferrier.

The papers to be presented at this meeting, and their authors, are:

"The Gas Works Laboratory," by Paul McMichael, Atlanta, Ga.

"Oils Available for the Southern Gas Manufacturer," by R. M. Redding, New Grleans, La.

"The Manufacture of Water Gas," by A. D. Whittaker, Atlanta, Ga.

"Gas Advertising," by E. D. Brewer, Atlanta, Ga.

"Competition and Regulation," by James Ferrier, Rome, Ga.

"Some Notes on New Business and Advantages of a Show Room," by J. C. Rushin, Atlanta, Ga.

"Public Policy," by R. C. Congdon, Atlanta, Ga.

R. C. Congdon, Jas. Ferrier, } Committee.

The President—You have heard the report of the Committee on Papers. I want to say, when I put this matter up to Mr. Congdon, he wrote stating that he hardly thought it was fair to him to put him on a committee of that kind at that late day, as perhaps the result would not be entirely satisfactory, and he didn't care—I don't know that such was his exact language—that he didn't care to be Chairman of a committee that might not make a success. I told him to go ahead and do the best he could, and if he were not proud of it we would not mention the fact; but he must be quite proud of the result of the Committee's work, and he has reason to be. It is like one of the meetings of the American Gas Institute, where so many papers were presented by officials and employees of one of the big gas companies of the country. In making a man Chairman of the Committee on Papers from that Company, it resulted in his getting up a lot of papers by his men. I think it is a good thing that we appointed Mr. Congdon. Next we have the

Report of Committee on Badges.

If it is the desire to consider the question of a badge for the Association at this meeting, we can do so.

Mr. Hagerty—I am Chairman of that Committee. The sketch shown is by Mr. Whittaker, of Atlanta. I think it is the most appropriate design submitted. And, as far as I am concerned, I am pre-

pared to reccommend its adoption. The cost will be about $3.50 each. The members may inspect the plan or design.

The President—The question before you is the disposition of the report of the Committee on Badges. Is it desirable to postpone the consideration, thus giving a chance to discuss the matter individually, or do you wish to continue now?

On motion of Mr. Frund the matter under discussion was put over until a later hour. (To be Continued.)

Oils Available for the Southern Gas Manufacturer.

[A paper prepared by Mr. R. M. Redding, of New Orleans, La., for the Last Meeting of the Southern Gas Association.]

Petroleum and petroleum products first appear in history along with the building of Babylon and Nineveh. What was probably an asphaltum was used in constructing the walls of these two cities.

In America the honor of discovery belongs to a Franciscan missionary who, while traveling through southwestern New York, in 1635, discovered oil in small quantities.

The development in the South has been comparatively recent, dating from the year 1867, when oil was found in Nacogdoches county, Tex., by two hunters. Nothing came of this discovery, and no developments were made until 1889-90, when two wells were developed on property belonging to George Dulling, 7 miles south of San Antonio. The production from these wells was small, amounting to 48 barrels in 1889 and 54 barrels in 1890. These wells were about 300 feet deep and produced a high grade of lubricating oil of 28° to 30° B. Since 1890 well defined fields have been developed in Texas, Louisiana, Indian Territory and Oklahoma.

Texas.—In Texas we find the Nacogdoches field, Corsicana, Beaumont, Sour Lake, Saratoga, Batson, Humble, Spindletop, etc. For the early history of the fields I refer you to Mr. Thos. D. Miller's paper on "Texas Oil Fields," published in the 1905 "Proceedings" of the Western Gas Association.

In the year 1908, Texas produced 11,217,155 bbls., as against 12,322,696 bbls. in 1907. Of this 1908 production, Humble led, with 3,777,316 bbls.; Spindletop was second, with 1,741,070 bbls.; Saratoga third, with 1,700,986 bbls.; then follows: Batson, with 1,584,500 bbls. and Sour Lake with 1,580,655 bbls. Corsicana, which was one of the first fields of Texas, gave 211,335 bbls., and Powell produced 388,649 bbls. of heavy crude. The smaller fields supplied the remainder, in quantities ranging from 60,000 bbls. down.

Louisiana.—Louisiana, as a producer, dates from 1902, in which the Jennings field produced 548,617 bbls. Since then have been developed the Welsh, Anse-la-Butte and Caddo fields.

During 1908 the State produced 5,633,634 bbls., a gain over 1907 of 565,209 bbls. This gain was in the Caddo and Anse-la-Butte fields, the first being credited with 565,209 bbls., as against 48,266 bbls. for 1907, and Anse-la-Butte with 219,265 bbls., as against 76,958 bbls. in 1907. Jennings produced 4,856,889 bbls. in 1908, and 4,895,905 bbls. in 1907. The Welsh field dropped from 47,316 bbls. in 1907 to 43,976 bbls. in 1908, with no signs of further development.

Anse-la-Butte shows a decline also. In November, 1907, this field developed a 5,000-bbl. well, while in December, 1908, the whole field was making about 300 bbls. per day. There remain then but two big producing fields in Louisiana, Jennings and Caddo. The former is well known, and has shown a large production since its development in 1902, but is at present making only 7,000 bbls.

The Caddo field is of recent development and is much in the public eye at present, both as an oil and as a gas producing field. This field produced 4,650 bbls. in 1905, 48,266 bbls. in 1907, and 513,504 bbls. in 1908. From a letter received from the Caddo Gas and Oil Company, under date of the 15th inst., I quote as follows: "Our field was discovered some 5 years ago, 25 miles north of Shreveport, and the original point of discovery still remains about the center of the proven field. We have found two stratas of oil in this field, one between 1,300 and 1,500 feet, the other from 2,200 to 2,300, and, peculiarly enough, we find both high and low gravity oils in both stratas, the gravity running from 17 to as high as 45. The proven gas and oil field now is about 14 miles north and south, and about 12 miles east and west. There are now some 15 wells furnishing gas in the field, and about 40 producing oil wells with a daily production of some 3,000 bbls. There are now 36 wells being dug which will extend the field some 2 miles further south, 1 mile further east and 1 mile further north."

Oklahoma.—This field, known as the "Mid-Continent," is the leading oil producing field of the United States. In 1907 the "Mid-Continent" produced 52,475,516 bbls., in 1908, 50,453,590 bbls. In this field 2,742 wells were drilled in 1908, of which 2,478 were producers, 63 gassers and 201 dry holes.

The fields embraced in the "Mid-Continent" cover the Osage Creek, Cleveland, Cherokee deep and Cherokee shallow. The greatest activity is now in the Cherokee shallow district, which covers a tract 20 miles long and 3 miles wide; the wells being from 380 to 800 feet deep and producing oil ranging from 26° to 38° Baume, most of the production being about 35° Baume.

Annual Production in Different Fields—In Barrels.

Year.	Texas.	Louisiana.	Oklahoma (Mid-Continent.)
Before 1896.....	.....	.....	105,530
1896.....	1,450	.....	113,571
1897.....	65,975	.....	81,098
1898.....	546,070	.....	71,980
1899.....	669,013	.....	69,700
1900.....	836,039	.....	83,418
1901.....	4,393,658	.....	191,486
1902.....	18,083,658	548,617	368,849
1903.....	17,955,572	917,771	1,071,125
1904.....	22,241,413	6,718,958	5,717,527
1905.....	28,136,189	8,910,416	12,013,495
1906.....	12,567,897	9,077,528	23,118,648
1907.....	12,322,696	5,068,425	52,475,516
1908.....	11,217,155	5,633,634	50,453,590
Total....	129,036,785	36,875,349	147,861,415

To attempt to classify these oils from any standpoint other than chemical examination and actual test on machines will be of little value to the gas man. From a chemical examination certain valuable data is gotten which will frequently be sufficient to gauge the oil even before actual trial is made on machines.

Broadly speaking we may class all petroleums as of the paraffine olefine class. By paraffine class I mean those oils whose chief constituents are hydrocarbons of the formula $C_n H_{n} + 2$. These are the hydrocarbons which usually predominate in dry distillation of lignite, cannel coal, wood, turf, etc., which are rich in H.

The second class, the olefines, are of the composition $C^nH_2^n$. Yet this difference does not make a fixed line of demarcation, for an olefine can be converted into a paraffine by severing the double bond existing between the doubly-bound carbon atoms and adding two univalent atoms or radicals, which results in a paraffine or paraffine derivative, a compound of the same class as that which distinguishes the paraffine oil.

An ultimate analysis of petroleum shows it to contain from 85-88 per cent. C., and 15-12 per cent. H. In addition it may contain small quantities of SNH,SAs and Ph. In our Southern oils S may run as high as 2-2.40 per cent. for certain Texas oils and as low as ½ for northern Louisiana and Mid-Continent oils.

The percentage of H and C will vary in a loose ratio with the gravity, since the lower hydrocarbons which raise the gravity of the oil are richer in H than the heavier ones which predominate in the heavy petroleum. For this same reason there exists a close relationship between flashpoint and gravity. As to the origin of our Southern oils, it is hardly within the scope of this paper to discuss the two great theories of formation. A study of the geology of this section indicates that both sources may have produced oil.

In a Bulletin recently issued by the U. S. Geological Survey it is stated that the essential condition for oils are: A porous reservoir rock, an impervious cap rock, undulating strata which forms domes and complete saturation of rock with water, which gives slow circulation under hydrostatic head, or convection currents due to difference in temperature. All these conditions are present in the gulf coastal region. Much organic material is found in cretaceous and tertiary formations from which the oil may have been derived. The oil rock of Spindletop is said to contain 25 per cent. oil.

Prof. Peckham regards the oils of New York, Pennsylvania, Ohio and West Virginia as of vegetable origin, while Tennessee, Texas and California oils he classes as of animal origin. He goes further and suggests a vegetable origin for oils of paraffine base and animal origin for those of asphaltum base.

Under this assumption we would have to class certain oils of Texas and Louisiana as of animal origin, and the oils of northern Louisiana, Oklahoma and Indian Territory as of vegetable origin.

In support of this I wish to call your attention to the fact that the Nacogdoches oil does not show any solid paraffine, even by rigid,

freezing tests: and that Sour Lake oil contains as much as 20 per cent. asphaltum, while the sea wax found near the famous oil ponds of the Gulf run much higher, and that all the northern Louisiana and Territory oils which I have examined show the characteristic blue "bloom" or fluorescence of paraffine and precipitation of paraffine in the distillate.

Taken as a class, the Southern oils are less stable than the Northern. Corsicana oil begins to "crack" about 356° F., while Ohio oil requires 455° F. Of the Southern oils the Northern Louisiana and Mid-Continent fields supply an oil which cracks easily and, on account of high percentage of paraffines, give high illumination efficiency. In actual practice these oils will be found to work on carburetter and superheater temperatures about 200° F. lower than oils from the fields farther south.

Of the minor constituents of these oils, such as nitrogen and sulphur, I have but little information, except that in Beaumont oil nitrogen will frequently run about 1 per cent.

Sulphur percentages, which are of importance to the gas man, vary considerably, even in different sections of the same field. But in approximate figures I have found Beaumont oil to run from 1.50 to 2.4 per cent.; Jennings oil, from 1 to 2 per cent.; Welsh oil, .5 to .6 per cent.; Indian Territory, Oklahoma and northern Louisiana oil, from .2 to .5 per cent. A comparison of the results of analysis of oils from the different fields show that their properties vary to a marked degree.

Analysis shown on accompanying chart are made after the method prescribed by Stillman and represent the naphthas, oil coming off under 302° F., burning oils, that fraction coming off between 302° and 572° F., and paraffines, the distillate above 572° F. (Reports of these analyses in full will be given in the published report.) The residues left after distillation are shown, and also the loss due to cracking, and non-condensed hydrocarbons which escape. The figures and plots represent percentage by weight.

In gravity the oil from the Welsh field runs from 17° to 20° B.; that from Beaumont and Jennings varies but little, running about 24° to 27° B.

Indian Territory and Oklahoma oils which I have had occasion to test show a gravity near 35° B., while Caddo oil has a wide range, running as low as 17° B. and as high as 45° B.

In naphthas the Territory oil exceeds any other and is considered by the refiners as especially valuable for naphtha and burning oil products. As will be seen from the analysis this oil shows 7½ per cent., while no other shows more than 1½ per cent.

Tars, which consist of the residue after distilling up to 700° F., vary from 5 to 7 per cent. in the Southern oils as compared to about 14 per cent. for Northern oils.

Fractionation of the Welsh oil shows it to be composed almost entirely of heavy bases. Only .34 per cent. coming off under 450° F. Between 572° and 725° F., 79.23 per cent. are given off, and of this 47.27 per cent. is delivered between 650° and 700° F.

On test this oil did not give good results. Gas made, using about 4 gallons per 1,000, analyzed as follows:

CO_2	2.60	CH_4	8.27
O_2	0.30	H_2	39.50
Illuminants	6.90	N_2	6.03
CO	36.40		
			100.00

Jennings and Beaumont oils give fractions of about the same percentage, until 600° F. is reached. Between 600°–650° Beaumont gives 12.63 per cent., as against 41.36 per cent. for Jennings; and above 650°, 29.05 per cent. as against 7.04 per cent. for Jennings oil.

Mid-Continent and light Caddo oils give very similar fractions, with the exception of the higher percentage of naphthas in the Mid-Continent oils.

In gravity the fractions from Welsh oil run from 31° B., for the lightest fraction, to 24.5° for the heaviest.

Beaumont fractions run from 40° to 22°; and Jennings from 42.7° to 27° B. Mid-Continent oils produce fractions running from 67° to 38°; while the 38° B., Caddo oil distillates show fractions running from 60° to 25°. A somewhat surprising feature of the 29.5° B., Caddo oil is that, although a heavier oil, its higher distillates are lighter than those of the 38° oil. Comparisons show 60° to 25° for the 38° oil as against 55° to 34° for the 29.5° oil.

On basis of oil used the Caddo shows 8 per cent. better than Jennings and 10.8 per cent. better than Beaumont; while the Jennings is 2.6 per. cent. better than Beaumont. On a basis of candles per gallon the Caddo oil is 8.3 per cent. better than Jennings and 13.7 per cent. better than Beaumont, while Jennings shows 5 per cent. better than Beaumont. In conclusion I wish to give credit to the "Oil Investors Journal" and to the "Caddo Gas and Oil Company," for much of the statistical data used.

[The paper was accompanied by 7 statements of complete laboratory analyses made by the Chemist of the New Orleans Gas Light Company.]

Free Work—How Far Should a Gas Company Go in Requiring Consumers to Pay for Equipment Necessary to Use Gas?

[Prepared by Mr. E. M. Colquhoun, for the April "Bulletin," National Commercial Gas Association.]

Several years ago it was the general practice among gas companies to charge consumers for service connection, and, upon the setting of the meter and turning it on, the consumer paid a good price for everything necessary for him to use gas. With the introduction of the incandescent gas burner and the gas range there was an awakening to the possibilities of increasing the business. The advances made by the electric light also stimulated the activity of the gas interests.

In order to insure rapid development, it became the general practice to completely reverse former conditions, and to encourage the use of gas through the free installation of services and the installing of appliances below cost. That this was good policy is conceded, for it has been proven by the rapid increase in the gas sales of the various companies.

The introductory period has passed and the question is, "Is it not advisable to make some changes in the present policy of doing so much free work?" My opinion is that we can eliminate considerable of our free work, most of which is done in an effort to stimulate the installation of appliances, both new and old, without appreciable loss in gas sales, provided the policy of thoroughly following up our prospects be continued.

At the present time most of our companies are installing services free to a definite point beyond the curb line, generally about 50 feet, and beyond this point making a charge sufficient to cover the additional cost. A few companies, particularly in the West, are running services free to the curb, and beyond that point making a charge per foot, which means every service costs the property owner something, varying according to the distance the building is located from the curb line. That some of the companies charging for services on this basis have been successful, notably Milwaukee and Grand Rapids, in procuring new business, is well proven by their sales per capita.

With the price of gas existing in our companies to-day, it seems reasonable to suggest that the gas company install services free to the front property line; that is, within the sidewalk, and beyond this point charging by the foot, at about the average cost, say 20 cents. This cost would fall upon the property owners in a very large majority of cases, not necessarily the consumers, except where they are the property owners. In the business section, where buildings are almost invariably placed with the front of the property line, and where we meet the greatest competition, there would be no charge for services.

Of course, the question at once arises as to what we would gain or lose by charging on such a basis. The gain can easily be seen, namely, reduced service cost to the company, conservatively an average of $3 to a service, this figure representing 15 feet at 20 cents per foot. I doubt if there would be any loss in gas sales because of such a charge. It is a fair proposition and means putting all consumers on the same basis, namely, delivering gas to the front of the premises.

As a large proportion of the new services installed, under conditions existing at present in most cities, are those to new houses erected, or to connect old houses along the line of new mains, the question is largely confined to them, and I fail to see where it would be an insurmountable objection for a solicitor to overcome in going after this business. In the case of the new houses, I doubt if it would meet with any appreciable opposition, for gas as a fuel has become so popular that it is an essential part of modern house equipment. I do not believe anyone erecting a building would allow a charge for a service connection, comparatively slight, and certainly fair, stand in the way of making the building complete. It would be a handicap in soliciting for service connection to old houses, but it is one that should easily be overcome.

When gas ranges and water heaters were first actively encouraged, as before noted, it was the policy to sell them at actual cost, and to install them free; but to-day they are sufficiently well known and their merits sufficiently recognized to need no more than good adver-

tising and efficient soliciting to insure their sale at prices which cover the cost of installation.

At least 25 per cent. of the ranges and water heaters sold to-day represent replacements of previous installations, and no actually new consumption is obtained. The sales in these cases are beneficial, in that they protect or hold gas business previously obtained; but at the same time it must be considered that such sales are comparatively easy to make, because the demand does not have to be created, and, therefore, there is no necessity to sell these below cost.

Here it is fair to assume that we should sell ranges, water heaters and similar appliances installed at prices which will prevent any loss. In my opinion we would sell as many appliances as we do at present, if the business is thoroughly solicited, and, therefore, there would be no loss in the new business possible to obtain. I might add a word of caution, for in advancing our prices it is possible to overreach the mark. Within limits, prices and terms have a decided influence on the number of appliances sold, and we should also note that just as soon as we set prices at a point where there is a fair profit above all costs, the way is open to competition, not co-operation, from dealers, which results in inferior appliances being sold and inferior connections being made.

In connecting ranges it is noted that the usually high cost jobs are generally those requiring connections above the first floor, and it is fair that these unusual cases should pay a charge in excess of the usual. In cities where such a charge has been made, it has met but little, if any, opposition, and is quite a factor in cutting down the expense of installing ranges. Such a charge should be about $1 per floor, in addition to the usual range of water heater prices or reconnection charges.

At one time it was a general custom to install a gas bracket and open flame burner, over a range, free, and lately this has been restricted to those instances where there is no other gas outlet in the room. This latter leads to more or less confusion, for a light is often desired over the range when there is a gas light at some other point in the room. With some companies the custom is to install such a light when requested at the time the range is purchased. This is not altogether desirable, for consumers may not learn such work is done free until at some date after the range is installed and then request it. To refuse him often results in his feeling that he is being discriminated against, and to do the work means an additional cost resulting from the extra trip.

It is very probable that if a flat price, just sufficient to cover cost, say 75 cents, were asked for the installation of one swing bracket, with a maximum of 6 feet of exposed pipe connected to the stove run, and the selling force brought the advantage of it to the consumer's attention, as many sales could be made that would result in increased gas consumption as are now produced by doing the work free. At the same time it would be a more satisfactory installation than the usual present practice of using a pillar cock or an ell burner cock, which does not look like a finished job. We should charge for the connecting of consumer's appliances. It is but fair if we are to charge for connecting new appliances, or rather include their connection cost in the selling price. The connecting of ranges and water heaters is principally a labor cost, as, in the majority of cases, the fuel line has previously been installed, therefore each additional reconnection of the same appliance involves additional expense.

It is important that this work be attended to by the gas company, and to secure this result the charge must be reasonable, otherwise the consumer will have the work done by plumbers, and this will lead to more or less trouble from leaks and improper connections. When the gas company does the work, an additional advantage is found in that it enables the new business department to keep in closer touch with what is going on in the way of appliances installed.

Flat prices, for work done for consumers, are generally the most satisfactory, and such a basis for reconnection charges is to be recommended, but due to the fact that there is such a wide variance between the two distinct classes of range reconnections, namely, those that are made where the fuel run has previously been installed, and those that are made where a complete new run from the meter is required, one flat charge covering all classes of reconnections and based on the average cost of all such jobs will not work out to perfect satisfaction, and will result in consumers having the shorter connection made by plumbers in many cases. Therefore, it is advisable to have two charges, the first based on the cost where the fuel line has previously been installed, and another based on the cost where a new fuel line from the meter is required, say $1 in the former case and $3 in the latter. The $1 charge should apply where a consumer wishes the location of the range changed on the same floor.

As more and more ranges are connected and fuel lines installed, a condition should be reached where it would be necessary to make but one charge, and this a small one, because the difference between the average cost and lowest cost will be so slight.

A charge should be made for reconnecting consumers' water heaters, but such a charge should, at present, be below cost, for gas water heaters have not advanced as rapidly as gas ranges in becoming a necessary part of household equipment, and a reconnection charge at its full cost would be sufficient, in many cases, to at least temporarily keep them out of service, and any charge that produces this result is not desirable.

Disconnecting a consumer's range is generally attended to without charge. Considering the fact that the cost of this work is slight, and that in many cases the same man who shut off the gas attends to the disconnecting of the range, a charge sufficient to cover the cost would be very small and might appear to be drawing the line too fine. It would also result in consumers attempting to do this work themselves in many cases, with a possibility of accidents, particularly as we have discontinued the use of stove cocks in the connection. When the company attends to the work, and this information is transmitted to the new business department, it would have some value in assisting them to keep all appliances owned by the consumer in use. With a reconnection charge, the amount of temporary disconnections—that is, those instances where a consumer has the range disconnected during the winter months—would be discouraged. When an order is given to disconnect a consumer's stove he should be advised at the time that there will be a charge made to reconnect it, even though it might be several months before he would want it reconnected.

The disconnecting of a water heater should be free, provided that the consumer wishes it reconnected at another location. Otherwise, it is fair to make a charge, for considerable work is involved in emptying the boiler and attending to the various water connections. The moving of ranges and water heaters by the gas company, from one house to another, should be discouraged as a general thing, particularly where it is done without charge. There appears to be no real necessity for the gas company doing this work.

Many companies make a charge for the installation of mantles by adding 5 or 10 cents to the prices charged over the counter; for instance, a No. 197 mantle, costing 19 cents, is sold for 30 cents over the counter and 40 cents put on. This is a case where free work would be advantageous to the company. It is undesirable to have the consumer install the mantle, for there are many little things that should be done in connection with this, such as blowing out the gauzes and bunsen tube and adjusting, that the average consumer does not comprehend and attend to. Therefore, in most cases it should be done by the gas company's men, and the easiest way to secure this result is to install them free. This free installation should be restricted to mantles selling for 25 cents and over.

Considering the fact that one of the greatest drawbacks in our lighting business is mantle trouble, everything possible should be done to insure the mantles being properly installed at the start. The expense to the gas company is slight, the benefits derived considerable, and certainly in excess of what would be lost through the discontinuance of these 5 and 10-cent charges.

Gasholders in the City of New York.

[Prepared for the JOURNAL, by "O."]

Since New York city acquired its title of Greater New York, January, 1898, there have been a number of improvements, all tending toward the realization of the dreams of the late Andrew H. Green and his associates, to make the city one, in fact as well as in name.

The Boroughs of Brooklyn and Queens are separated from the old city, now known as the Borough of Manhattan, by the East river, and the only highway above or below the river was the Brooklyn Bridge at the time of consolidation.

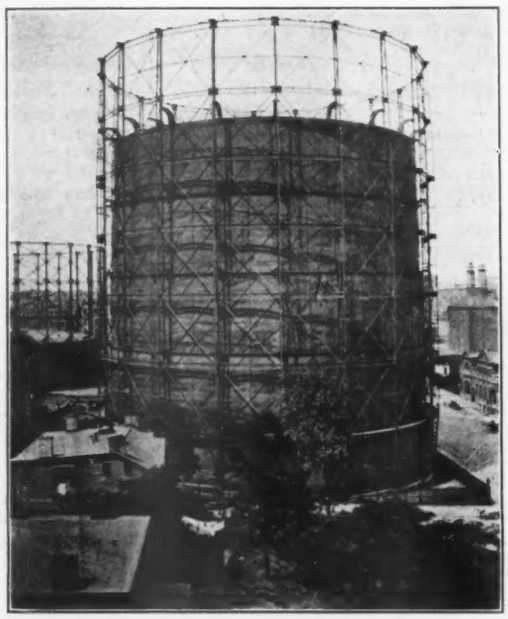
Since then two bridges and a tunnel have been opened, and another bridge started, connecting the Boroughs of Manhattan and Brooklyn and a bridge and a tunnel are to all intent opened between the first named Borough and that of Queens.

The last named, which is to be known as the Queensboro Bridge, has attracted considerable attention, as it is one of the largest cantilever structures in the world, and will cost over $22,000,000, exclusive of the property condemned for its approaches.

The idea of centralization has also been followed very closely in the engineering as well as the financial end of the gas business in New York city.

As witness of this fact the Astoria plant of the Consolidated Gas Company is a sufficient evidence. It is well known that the Company intends to manufacture practically all of its gas at this station, and eventually largely close down the plants now in operation in the Borough of Manhattan. The general public impression seems to be that the holders are to be removed also. But this is not the case and, in fact, probably more will be required in the future, unless wonderful changes are made in the methods of distribution.

Two new holders comparatively were erected by Messrs. Bartlett, Hayward & Co., for the Standard Gas Light Company, at Avenue B and 61st street, a block above the Queensboro Bridge. From the bridge the photo shown was taken of one of these holders, which is



reproduced herewith. They are of the same size, etc., the dimensions being as follows: Capacity, 5,000,000 cubic feet, diameter, 190 feet 10 inches, and 31 feet deep, in steel tanks.

They are built in five sections, the inner one measuring 178 feet by 39 feet 8 inches, the outer one being 188 feet by 38 feet 8 inches. The total height is approximately 240 feet.

The smaller holder partly shown in cut has a capacity of 3,000,000 cubic feet.

Near the opposite end of the bridge, or at Ravenswood, there are also two 5,000,000 cubic foot holders. These also supply Manhattan through the tunnel of the old New York and East River Gas Company. Including these there are 79 holders now supplying the Borough of Manhattan, and in addition 22 in the Borough of the Bronx and the county of Westchester, making a total of 101 holders in the system of the Consolidated Gas Company, of New York city.

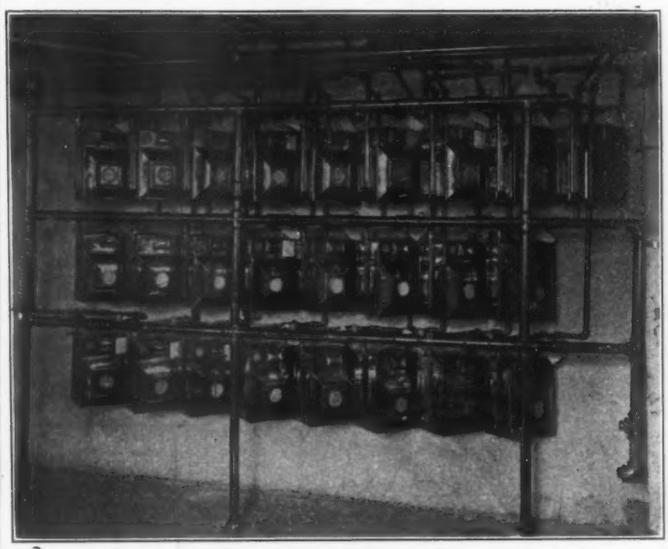
The writer is indebted to the courtesy of the Company's Chief Engineer, Mr. W. H. Bradley, and to that of his assistant, Mr. W. Cullen Morris, for the figures going herewith.

"Banking" Meters in Apartment Houses.

[Communicated by Mr. Irvin Butterworth.]

The illustration shows how the Detroit City (Mich.) Gas Company now "banks" its meters in apartment houses, etc. By means of rigid meter connections and interchangeable fittings throughout, the Company installs its meters with maximum economy of space and cost, placing them at an angle so that they overlap, making a very compact "bank" without interfering with ease in meter reading.

The supply pipes in front of the meters incidentally form a guard that protects them from injury, contact with ladders, boxes, etc. The removing and replacing of a meter from a "bank" arranged in this way is at once a quick and easy matter. An outline of this in the



shape of a "Wrinkle" was contributed to the proceedings of the last meeting of the American Gas Institute.

Ehebald's Connection for Gas Meters.

On the 2d ult. United States Letters Patent No. 914,250, were granted to Mr. Adam Ehebald, of New York city, for certain improvements in pipe connections for gas meters. Using the words of the specification: * * *

"In making the connection of the main and service pipes with the inlet and outlet pipes of the gas meters, the unions at the upper ends of these pipes are frequently loosened and wrenched off so that the pipes leak at these points of connection and require frequent repairs, which not only involve considerable expense but cause great annoyance.

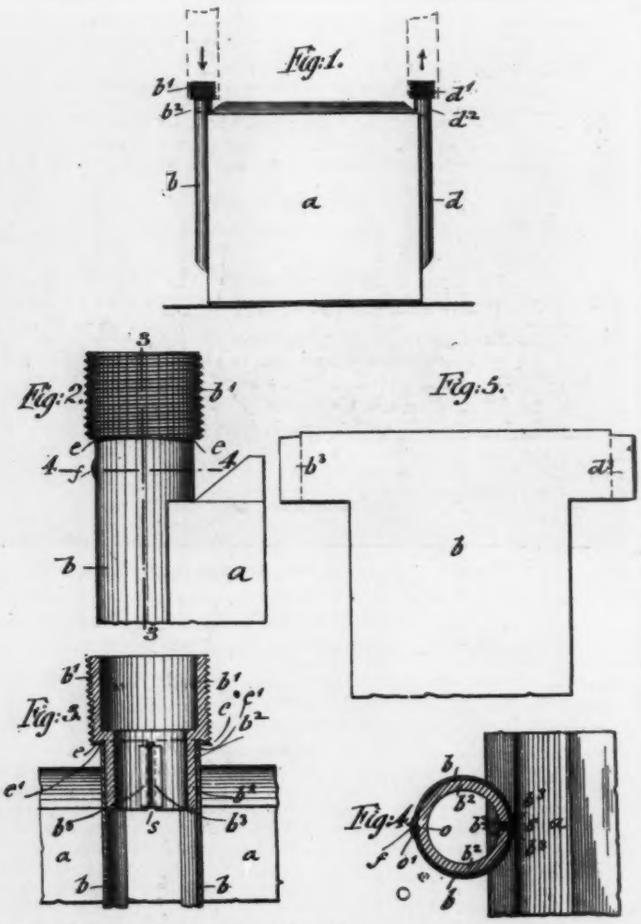
The object of this invention is to furnish an improved pipe connection for gas meters by which leakage due to the loosening of the unions at the ends of the inlet and outlet pipe of the gas meters is obviated and a reliable connection with the main and service pipes obtained, while, in case of repairs, the unions can be easily detached and new unions or new outlet or inlet pipes substituted, as required; and for this purpose the invention consists of a pipe connection for gas meters which comprises an inlet or outlet pipe having a threaded union having a longitudinally slitted nipple connected with the upper end of the inlet or outlet pipe, the upper end of the inlet or outlet pipe being wrapped around the nipple and provided with inwardly bent lugs that are inserted through the slit of the nipple for locking the union firmly in the inlet or outlet pipe.

The invention consists further in providing the union below its threaded portion with an undercut into which the upper edge of the outlet or inlet pipe is inserted and soldered so as to prevent leakage at that point.

The invention consists lastly of a soldered anchor between the nipple of the union and the inlet or outlet pipe, at a point opposite to the slit, said anchor forming an additional locking connection between the nipple of the union and the inlet or outlet pipe, as will be fully described hereinafter.

In the accompanying drawings Fig. 1 represents a side elevation of a gas meter of the ordinary construction with the improved pipe connections, Fig. 2 is a side elevation of one of the pipe connections drawn on a larger scale, Fig. 3 is a vertical central section through the pipe connection on line 3, 3, Fig. 2, Fig. 4 is a horizontal section on line 4, 4, Fig. 2, and Fig. 5 represents a blank for the inlet or outlet pipe of the gas meter. Similar letters of reference indicate corresponding parts.

Referring to the drawings, a represents a gas meter of the ordinary well known construction. The gas meter is provided at one side with an inlet pipe b, and at the opposite side with an outlet pipe d. To the upper ends of the inlet and outlet pipes are applied unions b^1 and d^1, which unions are respectively connected with the street main that supplies the gas from the street in the usual manner, and with the service pipe for the building. The unions b^1, d^1 are each provided with a threaded upper portion, and a smooth nipple b^2, d^2 below the same, the nipple being provided at one point of the circumference with a longitudinal slit s into which are inserted inwardly bent lugs b^3, d^3 formed at the upper ends of the inlet or outlet pipes. The inlet and outlet pipes are made of sheet metal, preferably tin, of the blank shown in Fig. 5, the upper ends being widened in such a manner that they lap around the nipples of the unions b^1, d^1 while the lugs at their ends are inserted side-by-side into the slits s of the same and bent in opposite directions. The upper ends of the inlet and outlet pipes are then soldered to the nipples of the unions so that a firm locking connection is obtained. By the inwardly bent lugs the union is prevented from getting loose and being turned in either direction when screwing the main and service pipes on the threaded unions, so that in this way the resulting leakage at these points is prevented, and thereby the loss of gas and expense for repairs obviated.



To render the connection of the upper ends of the inlet and outlet pipes with the unions still more intimate, the lower edge of the threaded unions b^1, d^1 is undercut at e, Fig. 3, so that the upper edge e^1 of the inlet or outlet pipe projects into said undercut e. When the solder is placed in the undercut e over the edge e^1, an absolutely tight connection between the unions and inlet and outlet pipes is obtained. To still more increase the locking connection between the union and the inlet and outlet pipes, the nipple of each union is provided with a depression o and the upper portion of the inlet or outlet pipe with a hole o^1, through which solder is passed, so that a soldered anchor f with a wiped head is formed, preferably at a point diametrically opposite the slit s in the nipple at the outside of the upper end of the inlet or outlet pipe, whereby an auxiliary means of resisting any turning strain on the union when applying or removing the main or service pipe is obtained.

The improved construction of the pipe connection between the gas meter and the main and service pipes of the same obviates the objections to the ordinary connections heretofore in use, in which the unions became loose and so produced leaky joints and expensive and annoying repairs. These are entirely avoided by my improved pipe connection. In this way not only labor, time and expense are saved, but the annoyance of such leaks and repairs to the gas users are dispensed with.

Interesting Legal Opinions
RESPECTING GAS PRACTICE.

Company's Liability for Damage by Escaping Gas.

Two actions were jointly brought against a gas company, by a man and his wife, to recover damages for injuries resulting from inhaling gas, which escaped from one of the company's mains located near the plaintiffs' home. The woman testified that she noticed the odor in the morning, but that she had never used illuminating gas and did not know what caused the odor. The gas made her ill and finally rendered her unconscious. The man testified that he also noticed the odor before leaving the house in the morning; but it did not occur to him that it might be illuminating gas, therefore, he did nothing toward notifying the company about the trouble. The company's agent testified that the odor was traced to a broken main, placed about 3½ feet below the surface of the road, which had been cracked by the frost. The necessary repairs were made within a short time after the company received word that its main was broken. It was shown that the company employed men to go around on various work, all of whom were instructed to be on the lookout for leaks, and that the only means of detecting broken pipes was by detecting the odor of escaping gas. The company's plant was open day and night and was equipped with telephone service. It would have been easy, therefore, for the plaintiffs to have notified the company of the escaping gas. But it was held that the plaintiffs were not, under the circumstances, guilty of contributory negligence in failing to let the company know that its pipe was broken. And it was further held that the fact that the pipe was cracked by frost was no defense. It was the company's duty to see to it that its pipes were placed at a sufficient depth in the ground, and in a suitable manner, and kept in proper repair. Thompson v. Cambridge Gas Light Company, Supreme Judicial Court of Massachusetts, 87 N. E. Rep. 486.

Items of Interest
FROM VARIOUS LOCALITIES.

THE Western Gas Construction Company, of Fort Wayne, Ind., has been awarded the contract for building the new gas plant at Peak's Island, Me., progress in the organization of which has heretofore been given in the JOURNAL, for the Peak's Island Gas Light Company. A new, up-to-date line of ferryboats has recently been put in commission between the Island and Portland, insuring greater growth to the former as a pleasure resort in summer.

IN the hearing that has been had before the Massachusetts Legislature respecting the complaint of Mayor Coughlin, of Fall River, that the rate charged for gas by the Fall River Company is too high, and that the Legislature should pass an order putting the rate at 80 cents per 1,000, much interesting testimony has been presented. Prominent in the testimony given was that submitted by Manager Nute, of the Company, in the course of which he handed in the following statement:

Year Ended June 30.	Average Sales per Meter. 1,000 Cu. Ft.	No. Gas Stoves in Use.	Net Price of Gas.	Average Cost per Year per Customer.
1890.....	38,346	163	$1.65	$63.27
1891.....	27,673	286	1.65	45.66
1892.....	30,893	604	1.65	50.97
1893.....	29,990	792	1.40	41.99
1894.....	26,522	1,067	1.40	37.13
1895.....	25,425	1,481	1.40	35.59
1896.....	27,290	1,905	1.40	38 21
1897.....	23,389	3,165	1.25	29.24
1898.....	23,233	4,131	1.25	29.04
1899.....	20,824	5,333	1.25	26.03
1900.....	21,428	7,001	1.25	26.78
1901.....	20,764	8,759	1.15	23.88
1902.....	20,300	10,875	1.00	20.30
1903.....	22,451	13,994	1.00	22.45
1904.....	22,422	16,075	1.00	22.42
1905.....	21,197	15,357	1.00	21.20
1906.....	22,415	16,755	0.90	20.17
1907.....	23,503	18,353	0.90	21.15
1908.....	23,842	20,241	0.90	21.46

MISS MOLLEY J. JOHNS recently completed a 3-day series of lectures given by the Fort Wayne (Ind.) Gas Company, at the direction of Manager Mulholland, for the better information of how to use gas for cooking in the homes of the residents. The attendance was very large at all the sessions, and included therein were many of the women whose names are known to qualify them for mention as amongst the society leaders of Indiana's justly famous beehive of industry.

IT looks now that the gas and electric lighting interests of Providence, R. I., are to come together, the domination subsequently to rest in the recently incorporated Blackstone Valley Gas and Electric Company. It is reported that the syndicate has acquired very close to control in the Gas Company, control in the Narragansett Lighting Company having already been secured.

THERE can be very little doubt that Mr. Henry L. Doherty and associates have secured control of the Spokane Falls (Wash.) Gas Company. Wherefore it is only a matter of short time when the artificial lighting interests of that city will be webbed together as have been those of Denver, Col.

A SEMI-OFFICIAL statement made some days ago, by the Rev. Dr. Ballard, President of the Ocean Grove (N. J.) Association, makes it plain that the Grove will have a gas works of its own by next fall, if not before.

THE sum of $13,824.65 has been paid into the State Treasury by the Consolidated Gas Company, of New York, which sum represents the taxes by the State in respect of the Company's attempts to have the 80-cent gas rate declared unconstitutional.

THE Waynesboro (Pa.) Gas Company has arranged for the placing of 2½ miles of mains to its distributing system. Provision has also been made for the abolition of all dead ends in the existing system.

MR. ALONZO B. WEED, formerly a member of the Massachusetts Board of Gas and Electric Light Commissioners, was down for a lecture to-night, before the Neighborhood Club, of the Brighton district of Boston. His subject was "The Work of the Gas and Electric Light Commission." We will reprint it.

OVER 2 years ago the Madison County (Ills.) Light and Power Company was granted a franchise to operate actively in the construction

and keeping up of a gas plant in Edwardsville, Ills. The financial stringency that culminated later on, in October, 1907, prevented the financing of the job, and virtually the franchise lapsed through time limitation. The project is again on the carpet. Mr. M. F. Duncan, of Greenville, Ills., having had several conferences with Mayor Hotz over the plan. The outcome of these conferences is the handing in to the authorities of a proposed franchise under which Duncan and his associates will be given permission to construct and operate a gas works for a period of 49 years. It is further stipulated that the city buildings shall be supplied with gas at the net cost per 1,000 thereof, and in no event shall the selling rate to the public exceed $1.50 per 1,000. This place could easily support a gas plant, and it is rather odd that some of the owners of the comparatively larger nearby places having a gas supply have not availed themselves of the high pressure plan of delivering to have long ago hooked up Edwardsville to their main lines.

Mr. A. B. Tenney, President of the Springfield (Mass.) Gas Light Company, sailed for Europe early this month, with a view to making a study of the vertical system of retorts as exemplified in 3 German works. Mr. Herman Burgi, the Springfield Company's Chief Engineer, has been in Germany on a similar mission since February last.

At the annual meeting of the Utica (N. Y.) Gas and Electric Company the officers chosen were: Directors, A. N. Brady, W. E. Lewis, S. A. Beardsley, Chas. S. Symonds, Chas. B. Rogers, W. T. Baker, W. I. Taber, Jas. C. Brady and M. J. Brayton. President, A. N. Brady; Vice-President, W. E. Lewis; Secretary, M. J. Brayton; Treasurer, George H. Stack; General Manager Gas Department, W. J. Cahill; General Manager Electric Department, C. A. Greenridge.

The Directors of the Wilkes-Barre (Pa.) Gas and Electric Company have elected Mr. W. H. Conyngham, of Wilkes-Barre, to the office of President, which position was made vacant by the resignation of Mr. R. L. Faust. The latter continues in the Board, however, and also retains his place on the Executive Committee.

The Real Estate Trust Company, of Philadelphia, Trustee under the mortgage of the Suburban Gas Company, of Philadelphia, to secure an issue of $2,500,000 first mortgage, sinking fund, 5 per cent. gold bonds, due April 1st, 1932, gives notice that it will receive offers for said bonds, up to 3 P.M. of the 30th inst., the offers to be for $17,300, at not to exceed 108 and interest.

"Mr. George B. Cortelyou, President of the Consolidated Gas Company, seems to be quite up to taking care of his old-time associates. At any rate I'm led to that conclusion through an item that recently appeared in the New York *Commercial*. That item declares that Mr. Cortelyou will likely appoint Mr. E. B. Fowler as Counsel for the Company. Everyone is entitled to his reward, of course, but many an unrewarded man still serves the Consolidated.—B. R."

Mr. A. H. Stites, formerly President of the Streator (Ills.) Gas and Light Company, died in La Jolla, Cal., the 2d, inst., in which place he had been sojourning for the benefit of his health. He settled in Chicago, in 1849, and was on the corps that surveyed the original line of the Illinois Central Railroad. At one time he was largely interested in the Van Depoole Electric Manufacturing Company.

The Cruse-Kemper Company will construct for the Easthampton (Mass.) Gas Company a storage holder up to retaining 150,000 cubic feet. The holder will be constructed on a plot purchased by the Company some time ago from the Glendale Electric Fabric Company, near the plant of the latter, on Mechanics street.

Under the profit-sharing plan in vogue by the New Haven Gas Company and its employees, in force for perhaps 2 years now, 493 shares have been put to the credit of the workmen.

"B. S. M.," writing from Toronto, Can., under date of the 14th inst., sends this: "I thought possibly this decision might be of interest to you. It was handed down some days ago—it was made of record last week. Mr. Justice McMahon has rendered judgment in 3 actions brought against the Brantford Gas Company by Stephen Harmer, Albert V. Holstock and James L. Williams, which were tried together at Brantford, without a jury, March 16, 18 and 19. The first named claimed $5,000 damages for the loss of property in the 'Theatorium,' Claiborne street, Brantford, of which he was lessee, by the explosion of natural gas, September 11, 1908, caused, as alleged, by a connection with the gas main by a pipe leading into the building, the end of which pipe, it was asserted, was not copper, and the gas escaped and accumulated in such quantity that an explosion occurred. Holstock claimed $5,000 for personal injuries sustained by him while sitting in front of the Theatorium at the time of the explosion, and Williams, a restaurant keeper, claimed $482.07 for destruction of fixtures, furniture and stock. The explosion took place at 1:45 P.M., being caused by Holstock striking a match to light a cigarette. The plaintiffs alleged that the gas pipes being laid down at the time by the Company were in defective condition, and that the defendant's servants and workmen were negligent. His Lordship finds that the 600 feet of gas passed through the pipes in Bouey's bowling alley during the 3 weeks prior to the explosion, which was unaccounted-for, and says that, 'although there was a brick wall separating the bowling alley from the Theatorium, we know how subtle gas is and how fast it permeates through small holes and crevices, and Mrs. Hart, in the early morning on the day of the explosion smelled gas in the Theatorium, which could hardly have come from the main, as it may have found its way through some hole or crevice between Bouey's and the Theatorium.' He adds that natural gas will not explode until mixed with oxygen, and that Professor Ellis stated that if 400 feet of natural gas was brought into contact with about 40 per cent. of air it would cause the explosion in this case on being ignited. Under the circumstances the judgment is dismissing the action without costs."

At the annual meeting of the American Light and Traction Company, Mr. Alanson P. Lathrop was promoted to the office of President, vice Emerson McMillin. The latter was made Chairman of the Board of Directors, a position created for him on the moment—a sort of lookout, likely. However, Mr. Lathrop deserves promotion, if efficiency and faithfulness count in said determinings.

It looks at this distance that Manager W. J. Murphy, with his usual complacent skillfulness, has caused the City Fathers of Grand Forks, N. D., to listen to reason. In any event it seems that the Fathers will be satisfied to permit the Company to charge a gross rate of $1.50 per 1,000 cubic feet, and that a meter rent or minimum readiness-to-serve charge of 25 cents per meter per month may be charged.

A correspondent in Helena, Mont., forwards the following under date of the 9th inst.: "According to the report submitted by Dr. A. W. Burwell, to the City Council, relative to the quality of gas furnished the consumers by the Helena Gas Company, the gas, both in quality and quantity, meets the requirements of the city ordinance. The report which Dr. Burwell made was submitted at the request of the Committee on Light and Street Railways, and authorized by the Council, and was the outcome of numerous complaints received relative to the quality of gas furnished during the winter by the Company. Dr. Burwell states that a series of tests were made at various places about the city, as is usual and necessary for a proper comparison of such tests. The expert states that in times past some verbal criticism has been made of the instrument used in making such tests, which instrument is known as the Weber photometer, but the use of this instrument and its general satisfaction prompts the expert to say that in his opinion no better instrument could be selected by the city for making the tests. The expert further states that a comparison of the instruments used by the city and those used by the Company was made, the result of the comparison proving that the tests made by both instruments were correct, but that the candle power as shown by the Weber photometer is always higher than that shown by the Bunsen bar photometer. Referring to the most economical point at which to burn gas, the report says: It was found possible to burn only 3½ cubic feet per hour, and obtain a light (Welsbach lamp) of a little over 100 candles, which corrected to 5 cubic feet would be equal to 143.5 candles. Tests were made of the heating gas, and over 150 readings were taken March 19, at the laboratory of Dr. Emil Sturz, the result showing the gas to have an average heating value of 544.8 British Thermal Units, per cubic foot of gas consumed, which is above the requirements of the ordinances. Continuing, the report says: As can be seen by the inspection of the report, the gas furnished the city is well above the requirements of the franchise. Your expert has been told of a number of complaints made from time to time, concerning the gas now being furnished consumers in this city. In most cases difficulties of this kind can be traced either to unsuitable burners, or the improper adjustment of such burners. It is no easy matter to give, in print, exact directions for the adjustment of burners, but general rules may be laid down by which intelligent persons may be enabled to get better results than are sometimes obtained. In the case of the ordinary flat burner, the best results will generally be obtained by turning down the gas after lighting under full head, until an even luminous flame with flat top is obtained. Consumers will obtain in this way somewhat less light than by burning under full head, but the light will be steadier and more agreeable and will be giving far more light per cubic foot of gas consumed, than by burning at high pressure. In the case of Welsbach burners, it is best to give the burner full pressure by leaving the cock on the fixture wide open, and then adjusting the flow of gas and air at the burner itself. If a play of blue flame can be seen outside the mantle, too much gas is being used; if the flame does not fill the mantle and make it uniformly luminous, too little gas is flowing. It must be remembered that for each change in gas, a corresponding change in the air directed to the burner must be made. In the case of cooking burners, the general complaint seems to result from the burners not getting air enough. This results from two causes, either the air is shut off too closely, or the burners are allowed to become clogged with dust or other matters. By observing these simple rules, consumers may save considerable gas and obtain much better results than by paying no attention whatsoever to their various gas appliances. Dr. Burwell presented a bill of $150 for making the tests, which Alderman Reifenrath declared exorbitant and suggested that it be referred to the Committee on auditing. Other members declared the tests were worth that amount to the city and to the gas consumers and suggested that the bill be allowed. After considerable discussion the bill and the report were finally referred to a special committee consisting of Aldermen Longmaid, Shelly and Reifenrath."

The Market for Gas Securities.

The market for Consolidated was steady through the entire week, but the trading was light. City gas bonds, however, continue in good demand, which remark is especially applicable to New Amsterdam 5's, which were freely taken at par. Brooklyn Union first mortgage is also commanding attention. By-the-way, is it not time for another skyrocket dividend in Brooklyn Union? The money is in the bank.

Peoples, of Chicago, keeps steady, Washington (D. C.) gas is a bit down from its recent high prices, and so is Providence (R. I.) in connection with the drawing near of the plan for the consolidation of the gas and electric lighting interests of that city. Judge Waddell has appointed S. G. Cumming, B. A. Lewis and others to sell at receivers sale the gas plants at Hampton and Phœbus, Va., constructed under the direction of the Public Service Corporation of Virginia

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

16 WALL STREET, NEW YORK CITY.

APRIL 19.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share:

N. Y. City Companies.	*Capital.*	*Par.*	*Bid.*	*Asked.*
Consolidated Gas Co.	$73,177,000	100	137	137¼
Central Union Gas Co.—				
1st 5's, due 1972, J. & J.	3,000,000	1,000	98	101
Equitable Gas Light Co.—				
Con. 5's, due 1932, M. & S.	1,000,000	1,000	—	105
Mutual Gas Co.	3,500,000	100	155	165
New Amsterdam Gas Co.—				
1st Con. 5's, due 1948, J. & J.	11,000,000	1,000	99½	101
New York & Richmond Gas Co. (Staten Island)	1,500,000	100	37	43
1st Mtg. Gold Bds. 5 p. ct.	1,000,000	—	100	101
New York and East River—				
1st 5's, due 1944, J. & J.	3,500,000	1,000	104	107
Con. 5's, due 1945, J. & J.	1,500,000	—	97	101
Northern Union—				
1st 5's, due 1927, J. & J.	1,250,000	1,000	94	100
Standard	5,000,000	100	—	75
Preferred	5,000,000	100	70	100
1st Mtg. 5's, due 1930, M. & N.	1,500,000	1,000	100	105
The Brooklyn Union	15,000,000	1,000	130	136
1st Con. 5's, due 1948, M. & N.	15,000,000	—	91½	92
Yonkers	299,550	500	130	—
Out-of-Town Companies.				
Bay State	50,000,000	50	1¼	1⅝
" Income Bonds	2,000,000	1,000	—	75
Binghampton Gas Works	450,000	100	—	65
" 1st Mtg. 5's	500,000	1,000	90	96
Boston United Gas Co.—				
1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47½	50
Buffalo City Gas Co.	5,500,000	100	5	8
Bonds, 5's	5,250,000	1,000	60	60½
Capital, Sacramento	500,000	50	—	35
Bonds (6's)	150,000	1,000	—	—
Chicago Gas Co. Guaranteed Gold Bonds	7,660,000	1,000	104	106¼
Cincinnati Gas and Electric Co.	29,500,000	100	91½	92
Columbus (O.) Gas Co., 1st Mortgage Bonds	1,500,000	1,000	96	98
Columbus (O.) Gas Lt. & Heating Co.	1,682,750	100	90½	91
Preferred	3,026,500	100	78½	80
Consumers, Toronto	2,000,000	50	200	204
Consolidated, Baltimore	11,000,000	100	—	105
Mortgages, 6's	3,600,000	—	—	118
Chesapeake, 1st 6's	1,000,000	—	—	—
Equitable, 1st 6's	910,000	—	—	—
Consolidated, 1st 5's	1,490,000	—	—	112
Consolidated Gas Co. of N. J.	1,000,000	100	15	17
Con. Mtg. 5's	880,000	1,000	92	95
Bonds	75,000	—	—	100
Denver Gas and Electric	458,000	—	102	105
Detroit City Gas Co	5,000,000	50	—	50
" Prior Lien 5's	4,619,000	1,000	97	100½
Detroit Gas Co., 5's	361,000	1,000	75	80
Equitable Gas & Fuel Co., Chicago, Bonds	2,000,000	1,000	—	101
Essex and Hudson Gas Co.	6,500,000	—	39	40
Fort Wayne	2,000,000	—	—	—
" Bonds	2,000,000	—	55	—
Grand Rapids Gas Light Co., 1st Mtg. 5's	1,225,000	1,000	104½	105
Hartford	750,000	25	190	200
Kansas City Gas Light Co., of Missouri	5,000,000	100	—	36
Bonds, 1st 5's	3,822,000	1,000	102	104
Laclede Gas Co., St. Louis.	10,000,000	100	—	100
Preferred	2,500,000	100	60	90
Bonds	10,000,000	1,000	104	104½
Lafayette Gas Co., Ind.	1,000,000	100	—	60
Bonds	1,000,000	1,000	60	65
Louisville	2,570,000	50	143	145

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ANNUAL MEETING.

OFFICE OF THE UNITED GAS IMPROVEMENT CO.,
N. W. CORNER BROAD AND ARCH STS.,
PHILADELPHIA, February 15, 1909.

The Annual Meeting of the Stockholders of The United Gas Improvement Company will be held at the office of the Company, Northwest Corner of BROAD AND ARCH STREETS, PHILADELPHIA, on Monday, May 3, 1909, at 12 o'clock, noon, for the purpose of electing a President and six Directors, to serve for the ensuing year, considering and acting upon the subject of a proposed increase in the capital stock of the Company from $18,005 shares of the par value of $50 each, to 1,000,467 shares of the par value of $50 each, and transacting such other business as may properly come before the meeting. The stock transfer books will be closed from 3 P.M., April 21, 1909, until 9 A.M., May 4, 1909. By order of the Board of Directors.

1759-5 W. F. DOUTHIRT, Secretary.

Position Wanted

As Manager or Superintendent,

By competent gas man, 35 years of age, married, strictly sober, with operating experience both as manager and superintendent in actual charge of plants. A man who can show and give results; 17 years' experience; now acting as manager of coal gas plant in city of 15,000. Will have to give present people 60 days' notice. Address,

1727-eot-tf "RESULTS," care this Journal.

Position Wanted.

An all-round gas man, married, five years' experience with one company, wants position as expert gasfitter. First-class references.

Address, CHAS. KARLICK,
1767-1 Bay Shore, N. Y.

Position Wanted.

ALL-ROUND FITTER, COMPLAINT AND WELSBACH MAN.

Best of references. Address, "W. J. F."
1767-1 Care this Journal.

Position Wanted

By a competent and reliable man, with 13 years of thorough, practical experience in all departments of the gas business; 33 years of age; married; strictly sober; good technical education, and one who can show good results. At present employed as manager in a city of 40,000 inhabitants. Can furnish first-class references from his present and past employers, as well as others. Willing to go anywhere, but the Far West or Pacific Coast preferred. Address, "BOX 24,"
1764-4 Care this Journal.

WANTED,

A Position as Foreman or Assistant to Superintendent or Manager,

By a young married man; sober and reliable; best of references; experienced on both high and low pressure water and coal gas. Address, "RELIABLE,"
1766-2 Care this Journal.

Position Wanted

As Superintendent,

By a competent water gas manufacturer. 10 years' experience, now employed by a company making 360,000,000 feet. Also street foreman, competent on high and low pressure work, and who can get results.

1766-2 Address, "S. A. K.," care this Journal.

Situation Wanted.

Increased sales—decreased operating cost. Can you use a man who can do this? Address, "M. O.,"
1766-2 Care this Journal.

NOTICE.

Twenty months ago I was drawing $1,500 a year as superintendent of a gas and electric property. I left them voluntarily to engage in a business which, through no fault of mine, has not yielded sufficient return. If any party or parties desire to engage my services for less money than I had been getting, I will correspond with them or give them a personal interview. Am willing to work for a nominal sum, as I will not remain idle. After a period of 1 year I shall leave it to my employer to say if I am worth more to him than that at which I had been engaged. *But first and foremost I want work.*

1767-3 Address, "C. B. Q.," care this Journal.

Position Wanted.

Mason, 12 years' experience in firebrick and benchwork, desires steady position in a gas works. References.

1767-3 Address, "O. D.," care this Journal.

Position Wanted

As Superintendent,

By a competent gas man who has had practical experience in all branches of the business, both coal and water gas. At present employed. A-1 references.

1755-tf Address, "R. C.," care this Journal.

Position Wanted.

On or before May 1st I shall be open for a position as superintendent or manager of a gas or electric property or of a combined property. I am a graduate of a leading technical university and have had 6 years of actual operation in the above lines. I am obliged to look for a position because of a complete change in the management of the companies I am now employed with as assistant to the president. I can refer directly to him as one of my references, and also to several leading gas and electrical engineers as to my ability and character. I am 29 years of age. Address reply to "M.,"
1766-tf Care this Journal.

Position Wanted.

Gas and electric manager, 39 years old, 18 years' experience, wishes position as manager or superintendent of gas or gas and electric property. Just returned from a 6 months' trip to Germany with new and valuable information. A-1 references.

1766-2 Address, "M. M., Box 151," care this Journal.

WANTED,

Foreman, to Take Charge of Street Main Laying,

With gas company a few miles outside of Boston. State experience, etc.

1766-2 Address, "BOX 17," care this Journal.

WANTED,

Man experienced in draughting and operation of coal gas benches, to represent well-known firm as salesman. State in what capacity employed at present and salary expected.

Address, "X. Y. Z.,"
1767-2 Care this Journal.

WANTED.

For Western territory, an aggressive and competent traveling salesman for a leading line of gas ranges and heaters. State age and experience.

Address, "MANUFACTURER,"
1767-tf Care this Journal.

WANTED,

Solicitor for Gas Appliances,

In a city of 40,000, in New England. Must have had experience. Give references and salary expected, also what results have formerly obtained.

Address, WOONSOCKET GAS COMPANY,
1767-1 WOONSOCKET, R. I.

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Six meter repairers and two meter testers, in a Missouri city, at once. State experience. Will pay $2.50 per day.

1767-1 Address, "METER 716," care this Journal.

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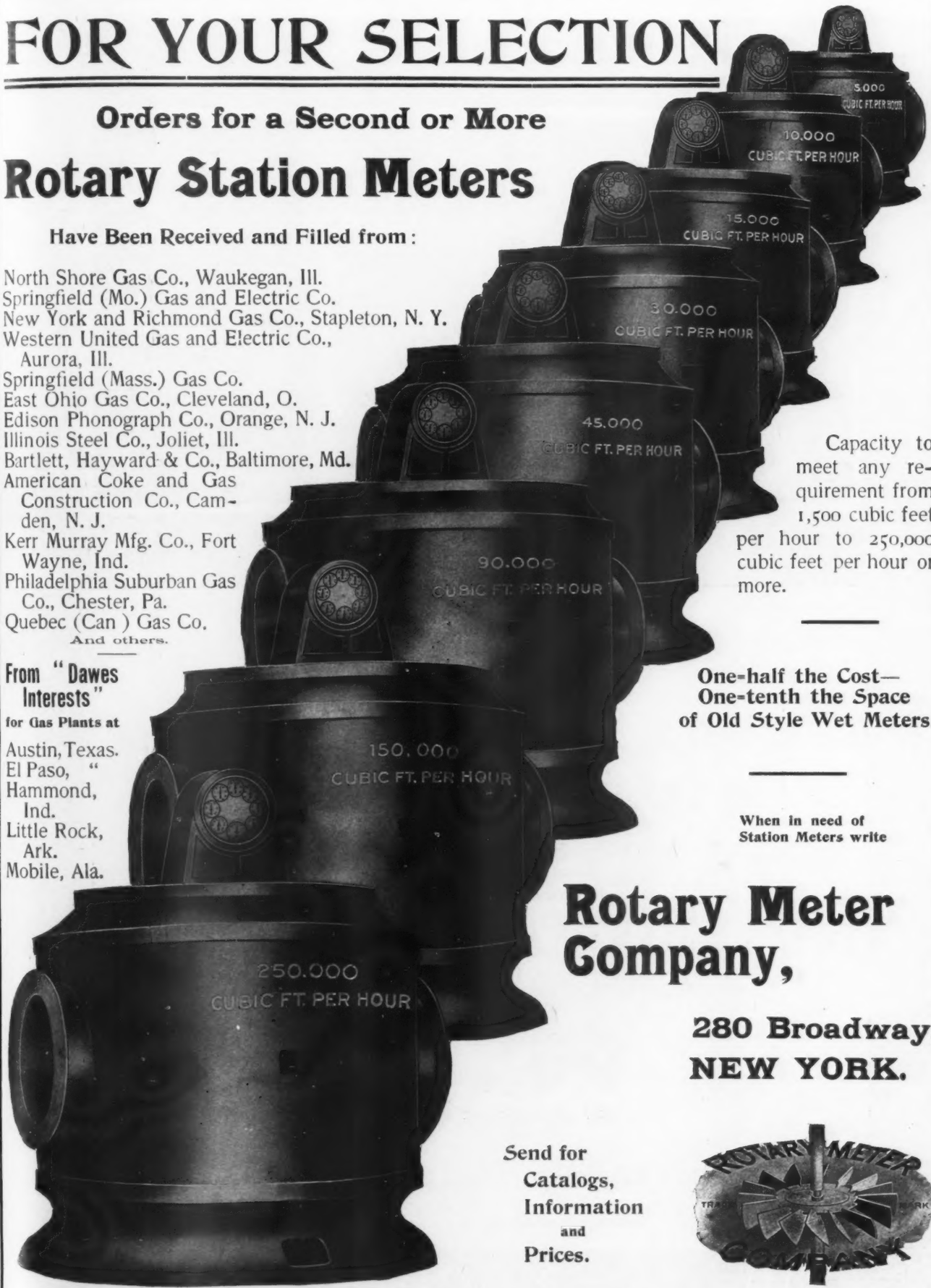

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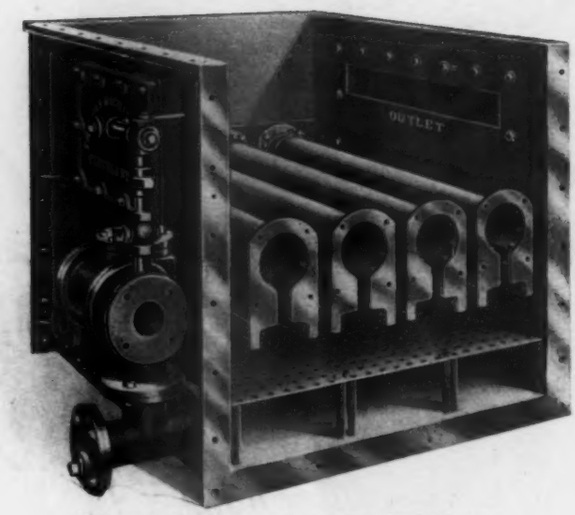

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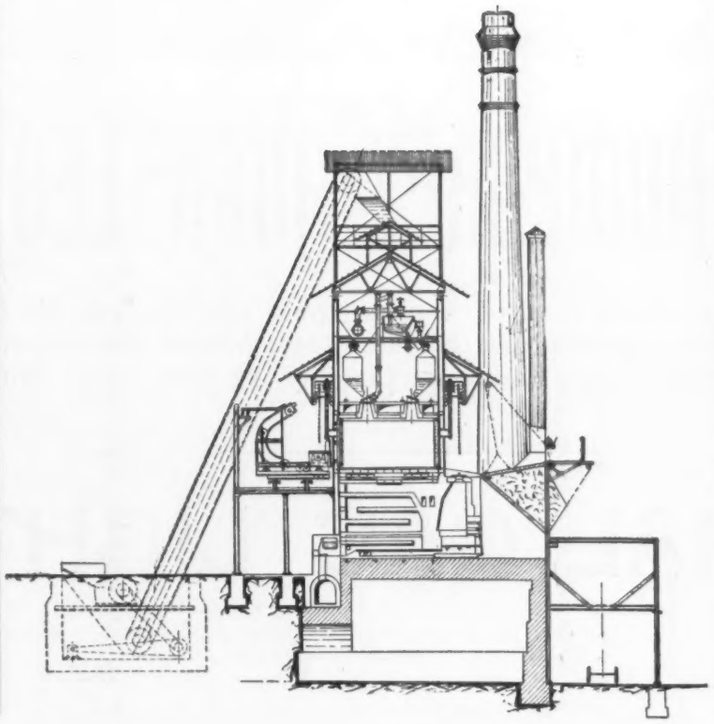

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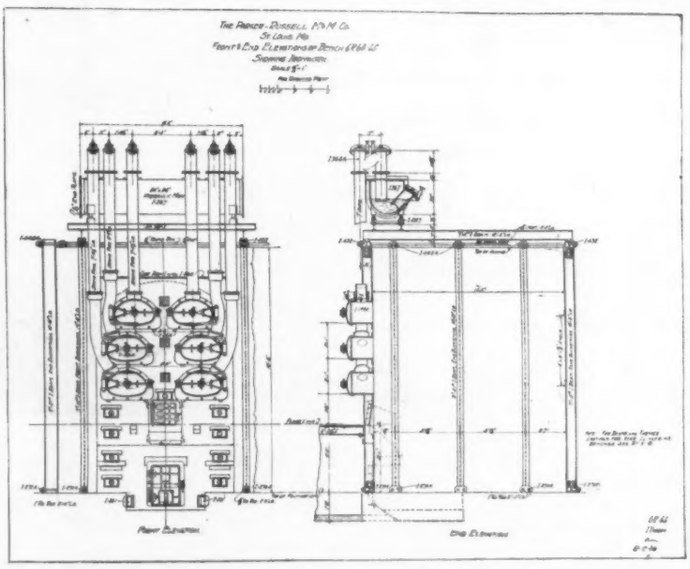

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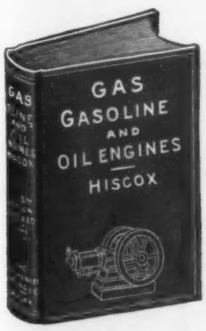

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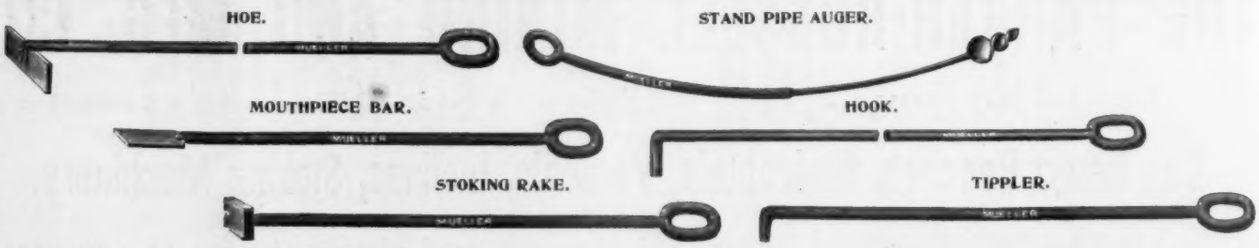

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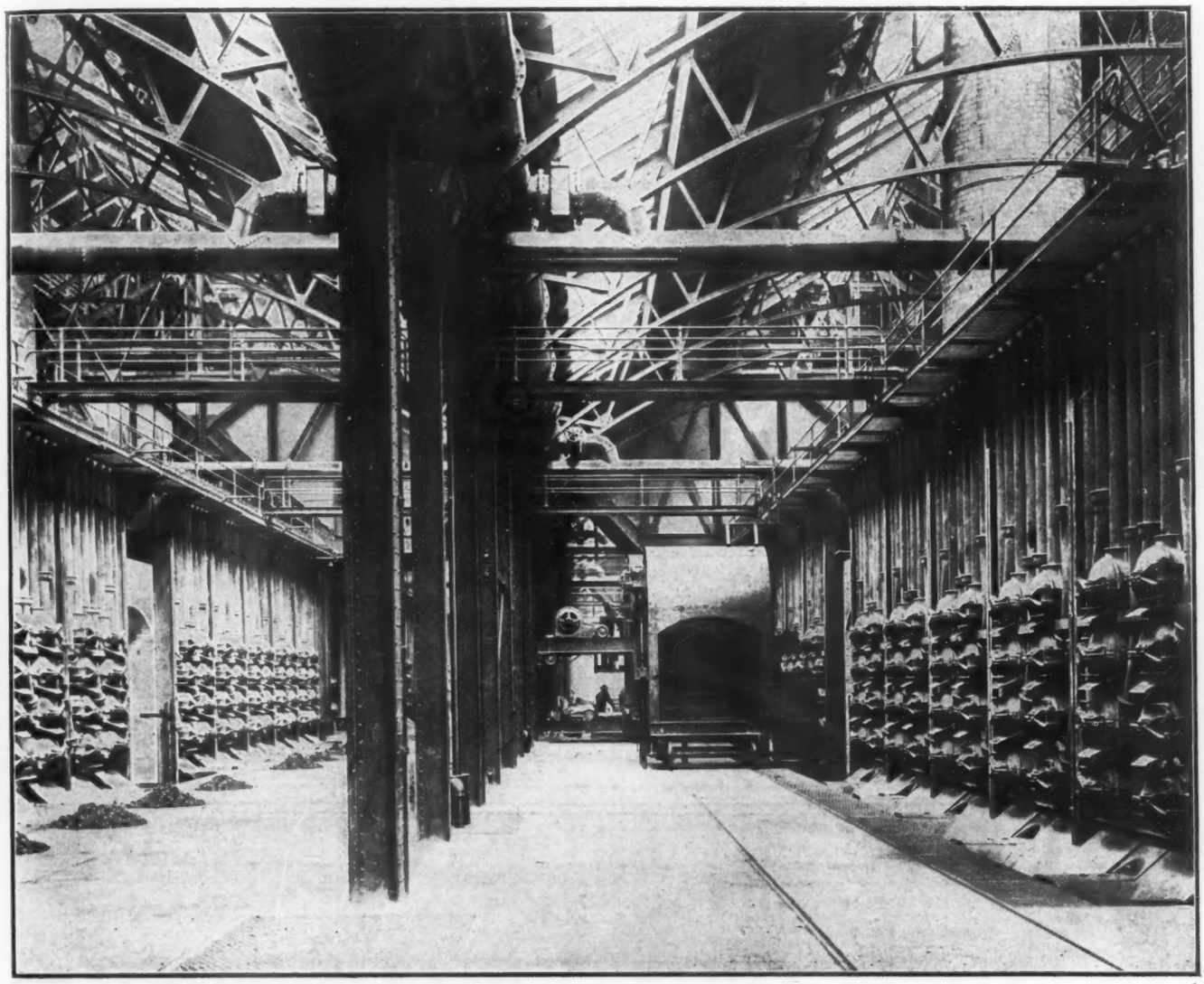

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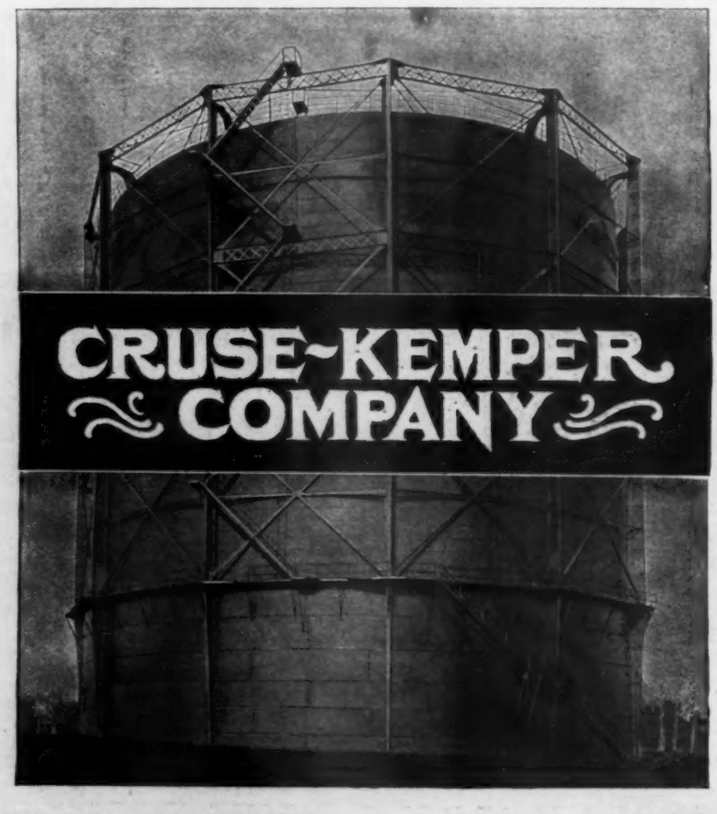

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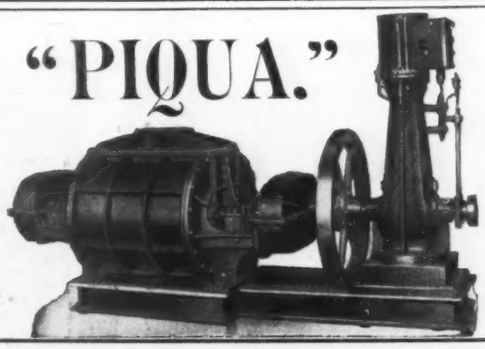

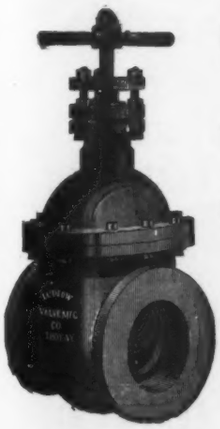

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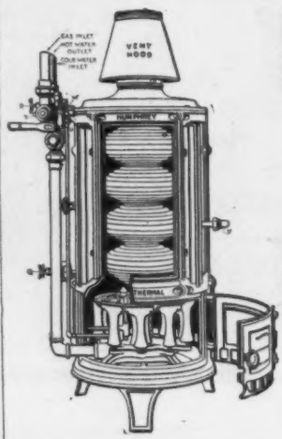

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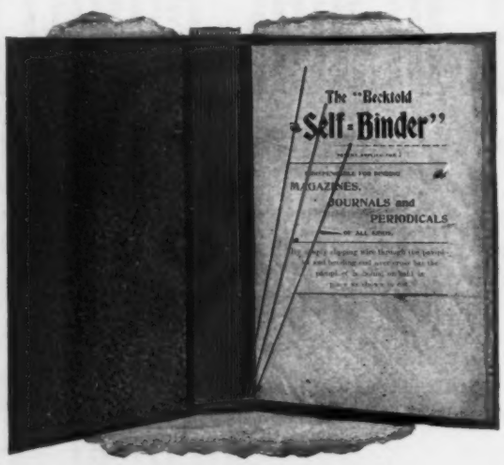

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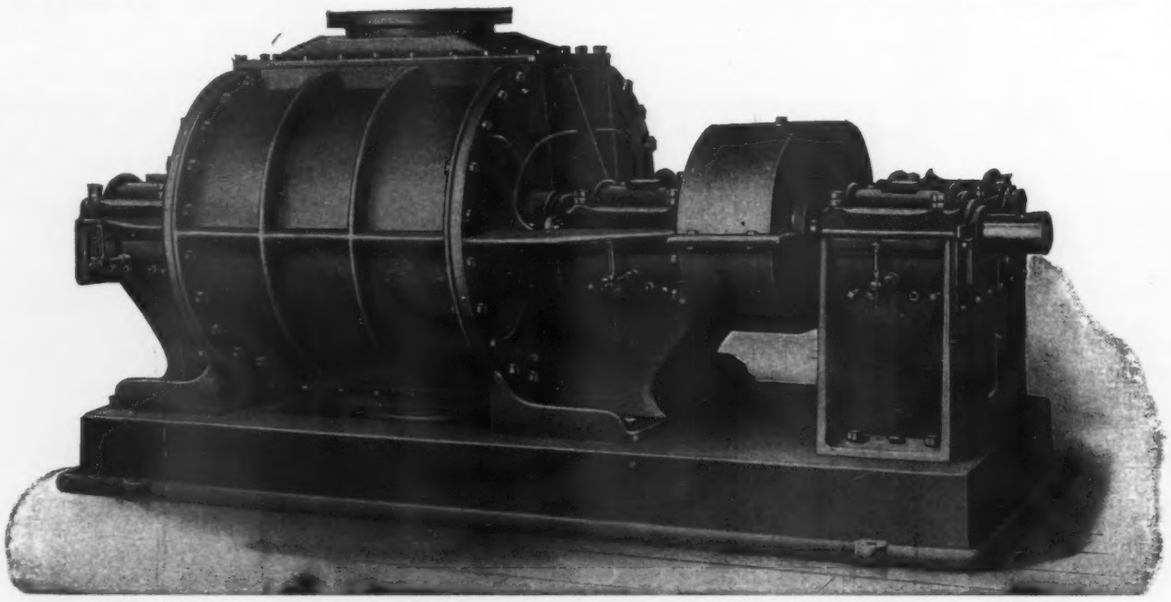

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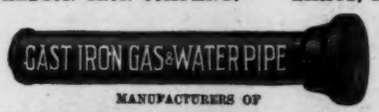

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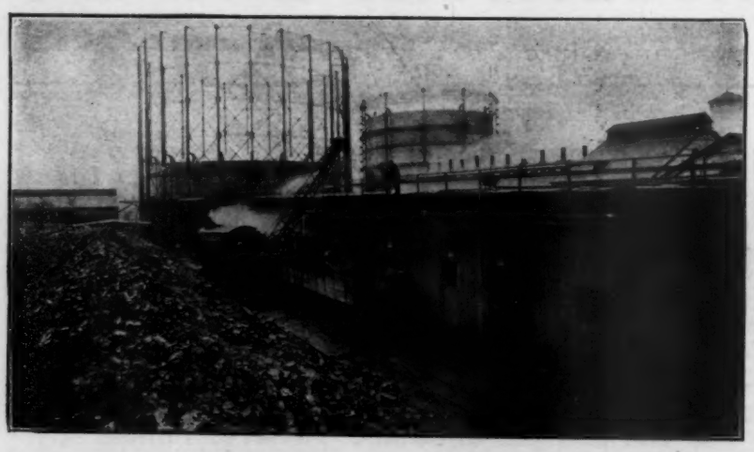

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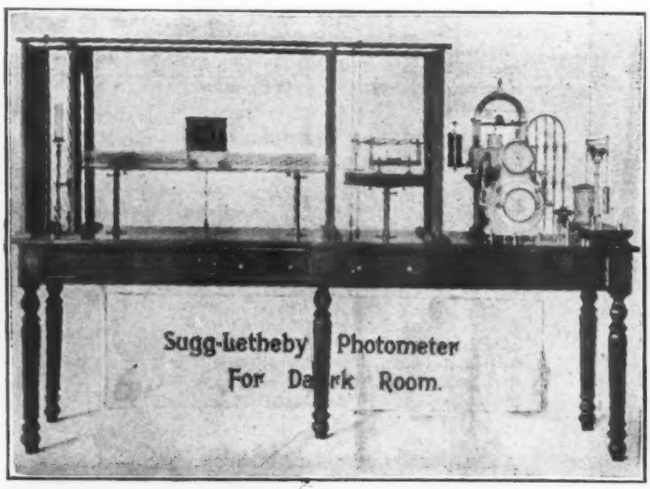
MAY, 1909.

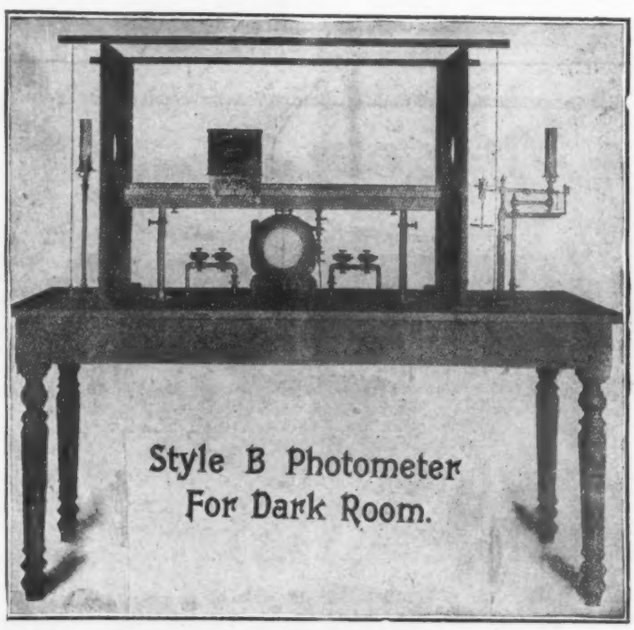
Day of Week.	Date.	Table No. 1. FOLLOWING THE MOON. Light.	Extinguish.
Sat.	1	3.00AM	4.00AM
Sun.	2	3.20	4.00
Mon.	3	3.40	4.00
Tue.	4	No L.	No L.
Wed.	5	No L FM	No L.
Thu.	6	No L.	No L.
Fri.	7	7.30PM	10.20PM
Sat.	8	7.30	11.30
Sun.	9	7.30	12.30AM
Mon.	10	7.30	1.20
Tue.	11	7.30	2.00
Wed.	12	7.30LQ	2.40
Thu.	13	7.30	3.10
Fri.	14	7.30	3.40
Sat.	15	7.30	3.40
Sun.	16	7.40	3.40
Mon.	17	7.40	3.40
Tue.	18	7.40	3.40
Wed.	19	7.40NM	3.40
Thu.	20	7.40	3.40
Fri.	21	7.40	3.40
Sat.	22	7.40	3.40
Sun.	23	7.40	3.40
Mon.	24	11.10	3.40
Tue.	25	11.50	3.40
Wed.	26	12.10AM	3.40
Thu.	27	12.40	3.40
Fri.	28	1.00	3.40
Sat.	29	1.20	3.40
Sun.	30	1.50	3.30
Mon.	31	2.10	3.30

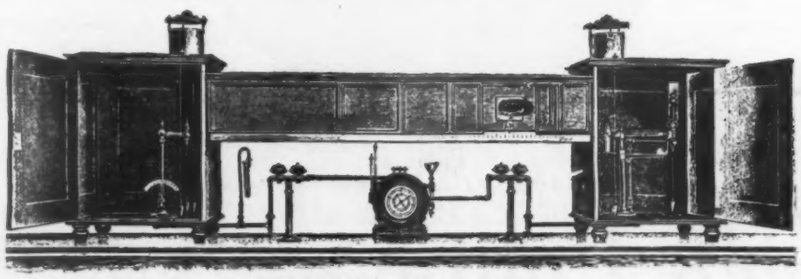
TOTAL HOURS DURING 1909.

By Table No. 1.

	Hrs.Min.
January	212.20
February	183.40
March	173.00
April	151.10
May	144.10
June	138.50
July	145.40
August	160.30
September	180.00
October	201.00
November	216.30
December	233.40
Total, yr.	2140.30







Closed Photometer For Light Room.

CIRCULARS SENT ON REQUEST.

PUBLIC LIGHTING TABLE.

MAY, 1909.

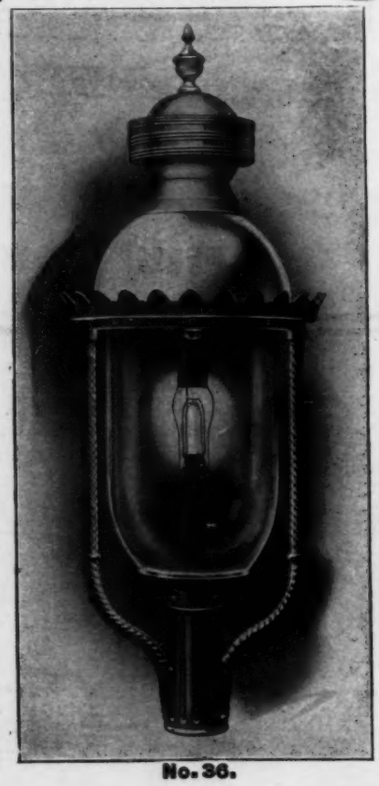
Day of Week.	Date.	Table No. 2. NEW YORK CITY. ALL NIGHT LIGHTING. Complete Lighting in One Hour	Complete Extinguishing in 50 Minutes
		From Time Given	
		P. M.	A.M.
Sat.	1	6.47	3.52
Sun.	2	6.47	3.52
Mon.	3	6.47	3.52
Tue.	4	6.47	3.52
Wed.	5	6.47	3.52
Thu.	6	6.47	3.52
Fri.	7	6.57	3.42
Sat.	8	6.57	3.42
Sun.	9	6.57	3.42
Mon.	10	6.57	3.42
Tue.	11	6.57	3.37
Wed.	12	6.57	3.37
Thu.	13	6.57	3.37
Fri.	14	7.07	3.27
Sat.	15	7.07	3.27
Sun.	16	7.07	3.27
Mon.	17	7.07	3.27
Tue.	18	7.07	3.27
Wed.	19	7.07	3.27
Thu.	20	7.07	3.27
Fri.	21	7.12	3.22
Sat.	22	7.12	3.22
Sun.	23	7.12	3.22
Mon.	24	7.12	3.22
Tue.	25	7.12	3.22
Wed.	26	7.12	3.22
Thu.	27	7.12	3.22
Fri.	28	7.12	3.17
Sat.	29	7.12	3.17
Sun.	30	7.12	3.17
Mon.	31	7.12	3.17

TOTAL HOURS DURING 1909.

	Hrs.Min.
January	428.30
February	358.15
March	353.10
April	298.10
May	263.20
June	234.45
July	248.30
August	278.00
September	311.25
October	370.05
November	397.40
December	438.35
	3980.25
Deduct on account of 50 min. extinguishing time	30.25
Total, yr.	3950.00

NEW YORK, 318 West 42d Street.
BOSTON, 820 Beacon Building.
PHILADELPHIA, Broad and Arch Streets.
ST. LOUIS, 712 Roe Building.
CHICAGO, 218 La Salle Street.
SAN FRANCISCO, 512 Oak Street.

WELSBACH STREET LIGHTING COMPANY



No. 36.

....OF AMERICA....

Controls and Operates the **Welsbach System of Street Lighting,**

Which includes its specially DESIGNED and PATENTED BURNER for PARK LIGHTING exclusively.

Uniformly SUCCESSFUL in 150 Cities and Towns.

By means of the Welsbach System of street lighting the superiority of GAS over electricity for street lighting has been fully demonstrated.

POINTS OF MERIT:

It is { Economical, Attractive, Successful, Up-to-date.

IT LIGHTS THE STREET.

Where there are no gas mains we can furnish an equally good light by our SELF-GENERATING NAPHTHA WELSBACH BURNER, and thereby supply a uniform light in all localities.

Correspondence Solicited from Gas Companies and Others interested in Municipal and Outside Lighting.

No. 38.

Welsbach Junior

THE BIGGEST LITTLE LIGHT IN THE WORLD.

The Welsbach Junior Light is 5 inches high--consists of burner, mantle and chimney--and is attractively boxed in a pasteboard carton.

As its effectiveness and economy become better known the Welsbach Junior will supersede, for universal use in the home, the old-style open flame gas burners.

Showing Welsbach Junior Light used in connection with ordinary glass globe.

Gives 50-Candle Power.

Uses Two Feet of Gas per Hour.

Attaches to Any Gas Fixture.

Completely Hidden from View.

Use your own globe--either gas or electric.

SMALL—EFFICIENT—ECONOMICAL.

Welsbach Company, FACTORIES: Gloucester, N. J. Columbus, O.

Salesrooms in all Leading Cities of the United States.

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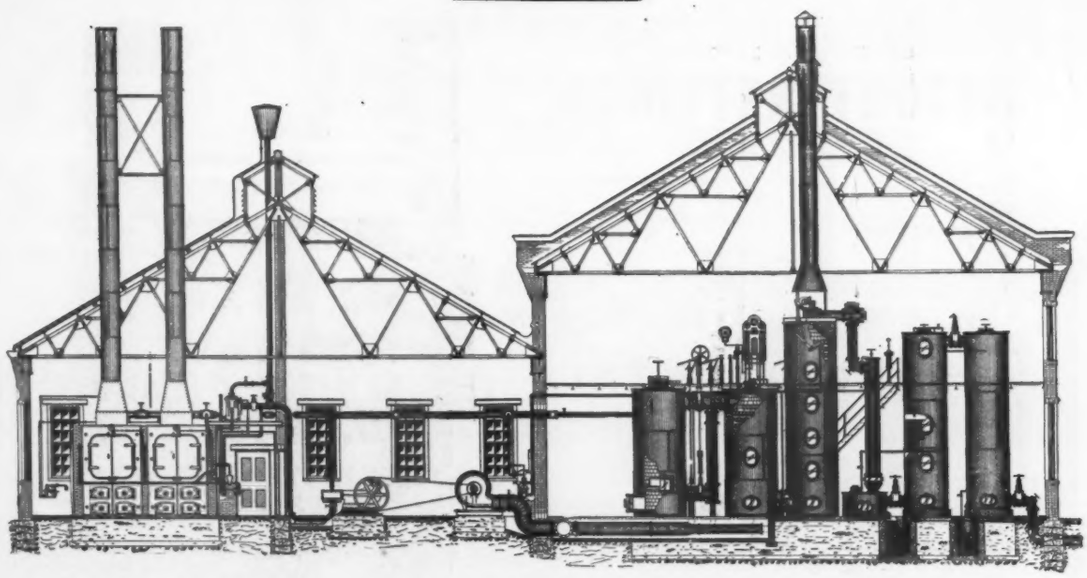
LESSEES, OPERATORS AND BUILDERS OF **GAS WORKS.**

Largest Builders of CARBURETTED WATER GAS PLANT IN AMERICA.

SOLE AMERICAN BUILDERS

OF THE

Standard Double-Superheater Lowe Water Gas Apparatus.



TOTAL SETS INSTALLED TO DECEMBER 31, 1908, ... 690
TOTAL DAILY CAPACITY, TO DECEMBER 31, 1908, ... 558,565,000 cu. ft.

Tar Extractors for Carburetted Water Gas.
Photometrical Apparatus.
Gas Analysis Apparatus.
Recording Gauges.
Straight Standpipe System for Coal Gas Retorts.
Straight Standpipe Cleaners.
Waste Heat Boiler.
Hygrometer.
Meters for Regulating Air and Steam Supply to Water Gas Apparatus.

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Ground Fire Clay, Fire Sand and Ground Fire Brick in Barrels and Bulk.

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KRATER-DINAS RETORT CEMENT.

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In Kegs, 100 to 200 " " 6 " "
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ESTABLISHED 1868.

L. N. RANCKE, V. Pres. & Mgr. E. L. RIEHA, Engineer.

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HIGH GRADE FIRECLAY MATERIAL FOR ALL PURPOSES.

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RAIL AND WATER CONNECTIONS TO ALL POINTS.

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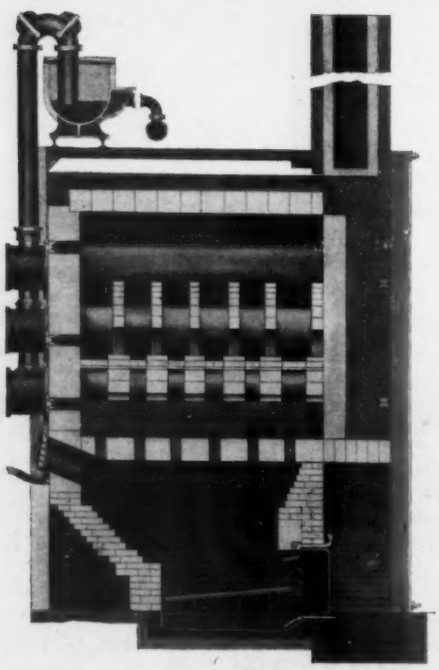
RETORT SETTINGS.

VERTICAL.—HORIZONTAL.—INCLINED.



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JOHN DELL,
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ESTABLISHED 1882.

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Bronder Patent Stoking Machinery.

Three-Scoop and Three-Rake Charging and Discharging Machines are operating in New York, Newark, N. J., Philadelphia, Worcester, Mass., Mt. Vernon, N. Y., Toronto and Montreal, Canada, Detroit, Seattle, Rochester and St. Louis.

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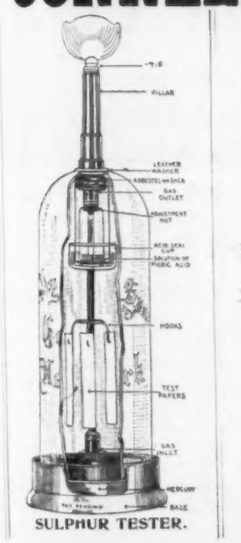

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Automatic, Balance, High Pressure and Service Governors,
Unison Telemetric Pressure Gauge,
Iron Sponge, Purifying Material for Gas Purification, Manufacturers of Jones Jet Photometers, The National Smoke and Ammonia Helmet, Sulphur Testers, High and Low Pressure House Governors.

Wide Experience in High Pressure Installation and Extension.

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And Low Pressure Regulators, all of the Dry Diaphragm type.

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These valves are provided with double discs or gates, and are tight with the gas pressure on either side of them.

The discs are so arranged as to be free from their seats when being opened or closed, and are operated by a quick-acting mechanism. The valve stem extends outside of the bonnet, and serves as an index, showing whether the valve is closed or open, and the amount of opening. They are made of the following dimensions:

Size	8 inches	10 inches	12 inches	16 inches	20 inches	24 inches	30 inches	36 inches
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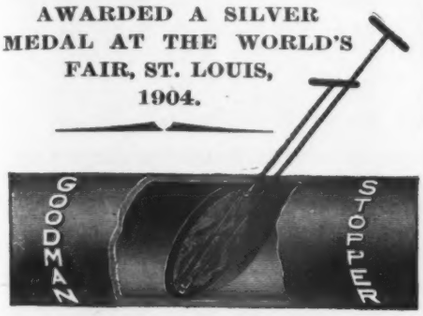

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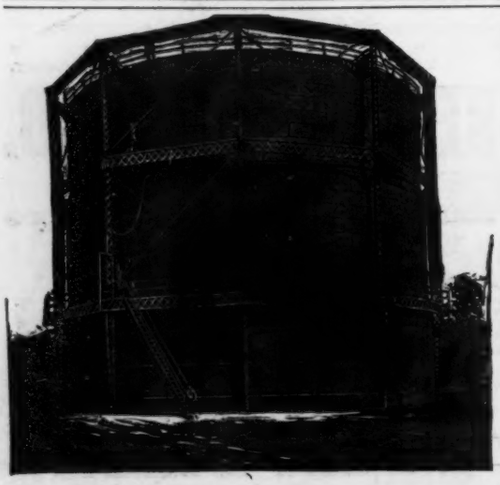

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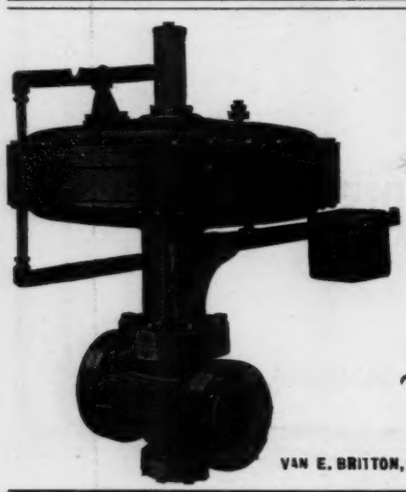

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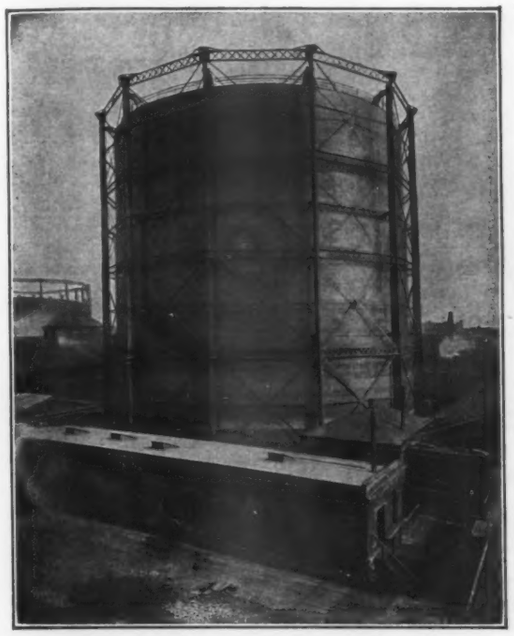

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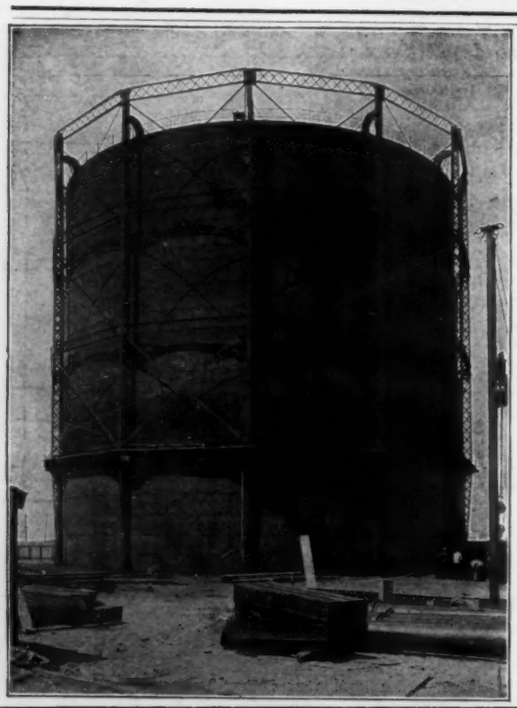

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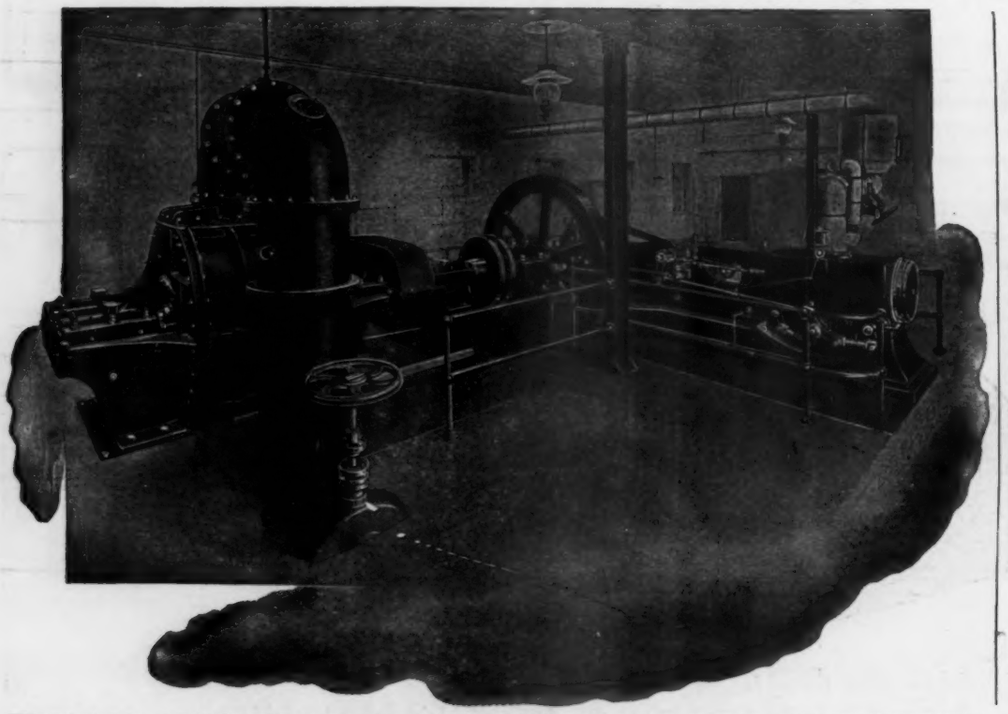

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We also manufacture

GAS VALVES,
BY-PASS VALVES,
PRESSURE REGULATORS,
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